The Honorable Benjamin H. Settle

UNITED STATES DISTRICT COURT
WESTERN DISTRICT OF WASHINGTON AT TACOMA

EAGLE HARBOR HOLDINGS, LLC, and MEDIUSTECH, LLC, Plaintiffs, v. FORD MOTOR COMPANY, Defendant.	Civil Action No. 3:11-cv-05503-BHS ORDER OF THE SPECIAL MASTER REGARDING CLAIM CONSTRUCTION

This matter comes before me pursuant to the Court's Order Appointing Special Master (Court Doc. 140) to construe the claims of ten patents asserted in this action. Having reviewed the parties' briefs and supporting materials, and considered the oral arguments of the parties, the disputed claim terms are construed as set forth below.

Overview of Patents in Suit

Eagle Harbor Holdings LLC and MediusTech LLC (collectively referred to as "Medius") allege that Ford Motor Company ("Ford") has infringed 118 claims of ten different patents by incorporating SYNC and Active Park Assist systems into its vehicles. The details of the accused systems were not submitted by the parties and were not considered as part of the claim construction.

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Many of the asserted patents have overlapping specifications, and they can be organized into groups in which certain related patents have the same or similar claim limitations at issue for review. A first patent is 6,615,137 entitled "Method and Apparatus for Transferring Information Between Vehicles." The '137 patent generally relates to systems and methods for avoiding vehicle collisions between a vehicle and an object. A second patent is 6,778,073 entitled "Method and Apparatus for Managing Audio Devices." The '073 patent is generally related to a vehicle audio system in which a processor is able to selectively connect different audio sources to different audio output devices.

The remaining eight patents all relate to a variety of computing systems, often expressly directed to implementations in vehicles, in which processors perform particular tasks or are configured in a particular way. At a general level, many of the claims relate to the interaction of applications and processors in a system having multiple processors. These asserted patents include 7,146,260; 7,778,739; 7,793,136; 8,027,268; 8,020,028; 8,006,117; 8,006,118; and 8,006,119.

From among these ten patents, the parties presented twelve different claim limitations having disputed meanings.

Legal Standards

The meaning of language used in a patent claim is construed as a matter of law. *Markman v. Westview Instruments, Inc*., 52 F.3d 967, 979 (Fed. Cir. 1995) (en banc), *aff'd*, 517 U.S. 370 (1996). It is a "bedrock principle" of patent law that the claims of a patent define the invention to which the patentee is entitled the right to exclude. *Phillips v. AWH Corp*., 415 F.3d 1303, 1312 (Fed. Cir. 2005) (*quoting Innova/Pure Water, Inc. v. Safari Water Filtration Sys., Inc*., 381 F.3d 1111 (Fed. Cir. 2004)).

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The words of a claim are generally given their ordinary and customary meaning as they would have been understood by a person of ordinary skill in the art at the time of the invention. *Phillips*, 415 F.3d at 1312-13. In some cases, the ordinary meaning may be readily apparent and claim construction involves little more than the application of a widely accepted meaning of commonly understood words. *Id*. at 1314.

The claims themselves and the context of the surrounding words can be "highly instructive" in resolving the meaning of the term. *Id*. at 1314. Other claims in a patent may also provide valuable contextual cues for deciphering the meaning of a term. *Id*. If a limitation is expressly present in a dependent claim, then there is a presumption that the limitation is not present in the parent claim. *Id*. at 1314-15.

The claims must also be read in light of the specification. *Markman*, 52 F.3d at 979. Indeed, "the person of ordinary skill in the art is deemed to read the claim term not only in the context of the particular claim in which the term appears, but in the context of the entire patent, including the specification." *Phillips*, 415 F.3d at 1313. "The construction that stays true to the claim language and most naturally aligns with the patent's description of the invention will be, in the end, the correct construction." *Id*. at 1316. Consequently, the specification is always highly relevant to the meaning of a claim term: "Usually, it is dispositive; it is the single best guide to the meaning of a disputed term." *Vitronics Corp. v. Conceptronic, Inc*., 90 F.3d 1576, 1582 (Fed. Cir. 1996); *Phillips*, 415 F.3d at 1314-17.

If the specification reveals a definition of a claim term that is different from how that term would otherwise be used, then "the inventor's lexicography governs." *See Phillips*, 415 F.3d at 1316. Care must be taken, however, not to import limitations from the specification into the claims. *Id*. at 1323. While the patentee is free to be his own lexicographer, any special

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definition given to a word must be clearly set forth in the specification. *Intellicall, Inc. v. Phonometrics, Inc*., 952 F.2d 1384, 1388 (Fed. Cir. 1982).

The prosecution history of a patent should also be considered when construing the claims of the patent. *Id*. at 1317. The prosecution history provides evidence of how the U.S. Patent and Trademark Office ("PTO") and the inventor understood the patent. *Id*. Nonetheless, the prosecution history represents the ongoing negotiation between the PTO and the applicant, rather than the final product. *Id*. As such, the prosecution history may lack the clarity of the specification and may not be as useful for claim construction purposes. *Id*. In certain instances, however, the prosecution history may provide guidance of an applicant's intent to specifically limit the scope of a given claim term. *Id*.

Extrinsic evidence, such as dictionary definitions or expert testimony, may also be considered when construing patent claims. *Id*. On its own, extrinsic evidence is unlikely to be reliable in guiding the court's claim construction and is less significant than the intrinsic record in determining the meaning of claim language. *Id*. at 1318. Dictionaries and other external sources can be useful in claim construction, "so long as the dictionary definition does not contradict any definition found in or ascertained by a reading of the patent documents." *Id*. at 1322-23 (quoting *Vitronics*, 90 F.3d at 1584 n.6).

Disputed Claim Terms

1. Kinematic state

The first patent containing a disputed claim limitation is US patent 6,615,137. The '137 patent contains a variety of claims generally related to detecting objects in the vicinity of a vehicle in order to avoid a collision between the object and the vehicle. In some of the claims, sensor data is transmitted among multiple vehicles in order to share information about

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surrounding objects. Other claims in the '137 patent, such as asserted claim 29, do not specifically refer to sharing sensor data but include limitations related to comparing a "kinematic state" of an object with that of a local vehicle and generating a warning and a "steering queue" so that the vehicle can avoid the object. The parties first disagree as to the meaning of the term "kinematic state" as used in claim 29 of the '137 patent. Claim 29 of the '137 patent provides as follows, with disputed claim terms underlined in boldface:

> A method for detecting objects, comprising:
> generating sensor data for areas around a local vehicle;
> identifying an object in the sensor data;
> determining a **kinematic state** for the object identified in the sensor data;
> determining a **kinematic state** for the local vehicle;
> comparing the **kinematic state** of the object with the **kinematic state** of the local vehicle;
> generating a warning indication when the comparison indicates a possible collision condition exists between the identified object and the local vehicle; and
> generating a **steering queue** that provides a direction for the local vehicle to move to avoid the identified object.

Medius contends that "kinematic state" means "one or more of distance, position, velocity, acceleration, deceleration, and/or direction."

Ford contends that it means a "state of motion."

The specification of the '137 patent uses the term "kinematic state" in several places. In most instances the term is used in the specification in the form of "kinematic state data" or "kinematic state information," though these terms are occasionally used interchangeably with the shorter term "kinematic state." For example, Figure 7 illustrates an exemplary graphical user interface depicting a pair of vectors and related information for two objects, B and C. The accompanying description of Figure 7 states both that it shows "kinematic state data" for

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vehicles B and C (at column 4, lines 57-65) and that it displays the "kinematic state" of vehicles B and C (at column 5, lines 1-6).

Medius argues that the specification supports its position that a kinematic state may include any one or more of several parameters and can therefore comprise, for example, position information alone. Medius first cites column 2, lines 39-41, which reads "This is accomplished by the vehicle 14A sending its kinematic state data 17 such as location, speed, acceleration, and direction to vehicle 14B." According to Medius, the term "such as" makes it clear that the variables that follow are exemplary and that not all of them are required to form a kinematic state. At column 2, lines 49-53 the specification describes an example in which vehicle 14B receives the position of vehicle 14A, with a transceiver 16A in vehicle 14A transmitting the kinematic state of vehicle 14A to vehicle 14C. According to Medius, because this example only mentions position information in the context of kinematic state data, the specification supports the specific example in which position alone is sufficient. In another excerpt, the specification states that "each vehicle A, B, and C generates kinematic state data 92 that includes position, velocity, acceleration or deceleration, and/or direction." '137 patent at 4:54-56. Medius further points to the description of the GUI illustrated in Figure 7, stating that it shows "any combination of the position, driving direction, speed, distance, and acceleration for the other vehicles." *Id*., at 4:58-64. Medius also argues that some of the "objects" described in the patent, such as a tree, are inherently motionless and therefore the "kinematic state" must be understood to apply to an object that is at rest or is otherwise immobile. '137 patent at Figures 8-9 and 5:28-36, 6:1-9. Based on these excerpts that mention position alone or refer to stationary objects, and other excerpts that use the terms "such as," "and/or" and "any combination," Medius contends that

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kinematic state should be understood to be any one or more of distance, position, velocity, acceleration, deceleration, and direction.

Ford counters that the term "any combination" is inherently plural and therefore kinematic state requires at least two of the enumerated parameters. '137 patent at 4:58-64. Ford also points to Figure 7 of the '137 patent, reproduced below. Figure 7 contains vectors 96 and 98, which are described as visually representing a kinematic state that includes a direction of movement. '137 patent at 1:61-63 and 4:61-5:3.

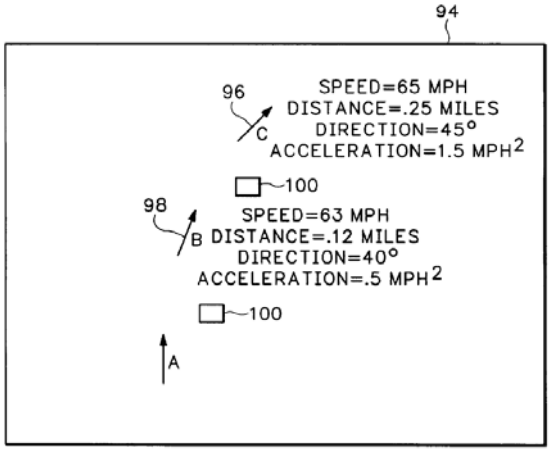

FIG.7

Although Figure 7 surely depicts an example in which the kinematic state data comprises several variables, including speed, distance, direction, and acceleration, the specification also includes other examples in which the system seeks to avoid objects that are plainly at rest. The more general excerpts in the specification that refer to kinematic state data consistently state that it need not include all of distance, position, velocity, acceleration, deceleration, and direction, but rather can incorporate some subset of these components.

Ford nonetheless argues that position alone cannot suffice because the claimed method would not work based on position information alone. In support, Ford presents an example in which two vehicles approach an intersection at a ninety degree angle with respect to one another.

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If the first vehicle wants to avoid a possible collision with the second vehicle, Ford contends that it would need to know the position, speed, and acceleration of both vehicles. Ford further points out that the specification explains that "collision conditions are determined by analyzing the bearing rate of change of the detected object with respect to the local vehicle." '137 patent, at 8:26-28. The bearing rate of change, it contends, requires more than position information alone and therefore a kinematic state must require more than position alone. Similarly, Ford argues that claim 29 requires the step of generating a warning indication when the comparison indicates a possible collision condition exists. Ford then urges that a possible collision condition cannot be determined (and therefore a warning indication cannot be generated) by knowing only the position of an object without also knowing other details such as its speed and direction.

Medius counters that some specific examples in the specification relate to position information alone, and that in some instances the system works quite well based on position information alone. In the event a vehicle is heading straight for a tree, for example, a collision condition could be determined by knowing only the position of the tree and the direction and speed of the vehicle. In such an example, the kinematic state of the tree might be its position alone while the kinematic state of the vehicle might be its direction and speed. Thus, the claimed method could determine a collision condition in at least some examples even if the kinematic state of the object amounted to position information alone. In other examples involving mobile objects the system might not be able to generate a warning indication without more information about the kinematic state of the object, but Ford does not explain why the term "kinematic state" should be construed so that a warning indication could be generated for every conceivable permutation involving a local vehicle and an object.

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Although only claim 29 is at issue, claim construction requires reference to the manner in which terms are used in the claims and mandates that terms be interpreted consistently in all claims. *Southwall Tech., Inc. v. Cardinal IG Co.*, 54 F.3d 1570, 1579 (Fed. Cir. 1995). Medius points to claim 1, which includes the limitation "kinematic state data." Certain of the claims that depend from claim 1 provide more specific limitations on the nature of the kinematic state data. For example, claim 7 requires kinematic state data to include "both a direction and speed of both the local vehicle and any objects identified in the sensor data." This additional restriction on the nature of the kinematic state data presumptively suggests that the broader term would not necessarily require both direction and speed. *Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 910 (Fed. Cir. 2004). A consistent claim interpretation of the same term across all claims would apply this same presumption to kinematic state in claim 29.

Ford contends that during the course of prosecution of the '137 patent Medius argued that position data alone cannot form a kinematic state. In support, Ford points to an excerpt distinguishing the Tognazzini reference (US patent 5,907,293) as teaching the transmission of "a vehicle's own position to other vehicles" rather than transmitting kinematic state data. In particular, Ford cites an excerpt in which the patentee argued:

> Tognazzini teaches transmitting a vehicle's own position to other vehicles or using a stationary proximity radar to detect vehicles and transmit their locations to other vehicles (column 3, line 56, to column 4, line 19). Tognazzini does not teach the recited element of transmitting kinematic state data for a local vehicle and objects detected in the sensor data generated by the sensors in the local vehicle to the other vehicle.

Court Doc. 89-2, at p. 110.

Medius counters that Tognazzini was not distinguished on the basis of objects being at rest or the use of position information alone; rather, Medius contends, Tognazzini described the

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use of either a stationary radar or the transmission of the local vehicle's own position instead of using sensors in the local vehicle in the manner as claimed.

The Tognazzini distinction is insufficiently clear to amount to a disavowal that would restrict "kinematic state" to require more than position alone. The applicable portion of the office action addressed application claim 8, later amended and incorporated into '137 patent claim 1. Unlike claim 29 presently at issue, the subject matter claim 1 relates to an inter-vehicle communication system, and the nature of the response in prosecution relates to the information that a vehicle transmits to other vehicles. One possible interpretation of the office action response is that Tognazzini only teaches either transmitting a vehicle's own position, or transmitting locations using a proximity radar, but does not teach transmitting *both* data for a local vehicle *and* data for detected objects to other vehicles. Because of the difference in the nature of the applicable claim and the possibility of varied interpretations of the response itself, the response is not a clear disavowal of the use of position alone for a kinematic state.

Finally, extrinsic evidence was offered by both parties, but it lacks sufficient clarity to influence the interpretation of kinematic state. Medius and Ford both point out that kinematics is related in some manner to the study of motion. The Medius definition from the *McGraw-Hill Dictionary of Scientific and Technical Terms* (1989) defines "kinematics" as "the study of the motion of a system…" Ford offers three separate definitions that each define kinematics in some manner as relating to an aspect of motion. *Dictionary of Geophysics, Astrophysics, and Astronomy* (2001) ("the study of motion…"); *Merriam-Webster's Collegiate Dictionary* (1996) ("a branch of dynamics that deals with aspects of motion…"); *Random House Webster's College Dictionary* (1999) ("the branch of mechanics that deals with pure motion…"). Though both sides acknowledge that kinematics relates to the study of motion, the larger limitation at issue is

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"kinematic state," which is a term that is not defined in the submissions of the parties. These definitions also do not clarify what would be required to determine a kinematic state, nor do they square with the portions of the specification relating to objects that are immobile and the references to positions of objects. The lack of a definition for the identical term further suggests that the term "kinematic state" is coined by Medius, and its usage in the specification together with the words "such as" and "and/or," and the application to motionless objects, compels the conclusion that a kinematic state can encompass any subset of the parameters enumerated in the specification.

Conclusion

The term "kinematic state" means "one or more of distance, position, velocity, acceleration, deceleration, and/or direction."

2. Steering queue

The next term for construction is "generating a steering queue that provides a direction for the local vehicle to move to avoid the identified object" This term is also drawn from claim 29 of the '137 patent.

Medius contends that "steering queue" means "a path or direction of travel" and that the remainder of this limitation need not be construed.

Ford contends that the entire limitation should be construed as "generating a steering cue, in response to a possible collision condition, that provides a direction for the local vehicle to move to avoid the identified object." Because the latter half of Ford's proposed interpretation repeats the wording of the claim, Ford's proposed construction essentially interprets "steering queue" to mean "steering cue," while also inserting "in response to a possible collision condition." Ford's purpose in adding "in response to a possible collision condition" is to make it

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clear that the steps of method in claim 29 must be performed in order, such that the "steering queue" must be generated after a possible collision condition is indicated, rather than in advance.

The word "queue" only appears in four places within the '137 patent, and two of those are in the claims themselves. Other than in asserted claim 29 and unasserted claim 12, the term is only found in Figure 9 and the description that refers to it. In Figure 9, reproduced below, reference number 109 points to an arrow, or vector, which is also labeled with the term "steering queue." Figure 9 is intended to present an exemplary graphical user interface (or "GUI") that may be provided within vehicle B to display other vehicles or objects detected in the area surrounding vehicle B. At column 6, lines 1-4, the specification explains that a processor "generates a steering queue 109 that determines the best path for avoiding vehicle A, vehicle C, and object 107.

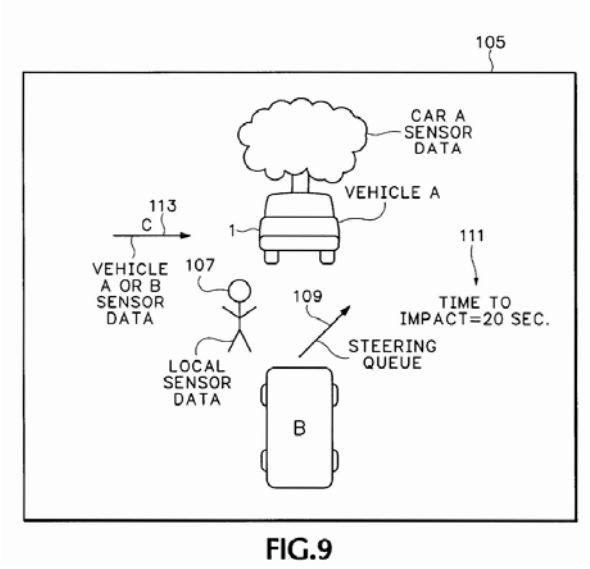

FIG.9

Turning first to the interpretation of "queue," Ford argues that "queue" means "cue." Ford initially contends that the usage in the '137 patent is inconsistent with standard dictionary definitions for "queue," which is commonly defined as a braid of hair, a waiting line, or a sequence of messages. *Merriam-Webster's Collegiate Dictionary*, 10th Ed. (1996), at p. 958.

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According to Ford, none of these meanings fit with the way the term is used in the patent. Rather, Ford argues that the term "queue" is used in the patent to mean a cue or signal, pointing out that the arrow 109 in Figure 9 is a visual steering signal to the user that provides a direction for the vehicle to move to avoid the identified object.

Medius counters that the patentee may have intended to use the word "queue" in a manner consistent with the dictionary definition Ford offered. Specifically, Ford points to the arrow 109 in Figure 9 and contends that it is a line in the same manner that the word "line" is used in the submitted definition. Even if the *Merriam-Webster* definition is accepted as the ordinary meaning of the word "queue," the line drawn in Figure 9 does not match up well with the inclusion of the word line in the definition. In the sense of the definition, and indeed in general ordinary parlance, a line formed by a queue is one made up of a plurality of objects that are organized in a line. Medius does not point to support for the proposition that a line with an arrow at one end has ever been called a queue.

The arrow 109 is illustrated in Figure 9 as being a part of a GUI. The GUI is displayed to the driver of a vehicle so that the driver can make use of the information related to detected objects, including a so-called "queue" that provides a direction for the local vehicle to move to avoid an identified object. From this terse description, particularly including the illustration, the queue would be understood to be a signal or indicator to the operator of the vehicle. In ordinary parlance, a "cue" is also a signal or indicator, such as one intended to provoke an action. This understanding is consistent with Ford's proposed interpretation, and because "queue" and "cue" are homophones, one inference is that the patentees wrote "queue" when they meant "cue."

Ford also points to marketing documents created by the plaintiffs at around the time of the invention that apparently describe the invention. In those documents, the author referred to

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"audio and visual cues" and to a "steering cue." See Ford Ex. 5. Based on the spelling of "cue" in these documents, Ford reasons that the '137 patent used an erroneous spelling of the homophone queue. Medius contends that its external documents use both words and that because they are external to the file history they should not be used as a claim construction aid. Medius has the better side of the debate regarding the use of this extrinsic evidence, which is not submitted to indicate an understanding of a person of ordinary skill at the time of the invention, and is insufficiently linked to the claim at issue to serve as an admission by the patentee.

Medius also contends that the use of "queue" rather than "cue" cannot be the product of a typographical error because queue is spelled the same way four times in the specification. Even if it is the result of an error, Medius contends, the Court can only correct an error if the error is evident from the face of the patent and not subject to reasonable debate. *Grp. One, Ltd. v. Hallmark Cards, Inc.*, 407 F.3d 1297, 1303 (Fed. Cir. 2005); *Novo Indus., L.P. v. Micro Molds Corp.*, 350 F.3d 1348, 1354 (Fed. Cir. 2003). On this latter point, Medius contends that there is no error here because the inventor may have used the term "queue" to indicate a line, and therefore it is used in a manner consistent with at least one ordinary meaning of the word.

There is insufficient support for the proposition that the inventors used the word "queue" when they meant to spell it as "cue." At the same time, the act of claim construction necessarily uses a different set of words to define the words used in the claim. If a person of ordinary skill would understand the word "queue" was used in the claims in a way that is consistent with the word "cue," then that conclusion would be one of interpretation, not correction.

The use of the word "queue" in the '137 patent is inconsistent with the definitions in Ford's dictionary citation. Although the steering queue 109 is drawn as a line in Figure 9 and the dictionary definition also includes the word "line," the context is quite different. In Figure 9, the

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steering queue 109 is actually a vector or a directional arrow rather than a line, and the difference is important because the vector indicates a specific direction while a line does not. Likewise, the dictionary use of the word "line" is not in the nature of a line drawn or presented on a display, but rather a number of items organized in a sequential fashion. Thus, the dictionary definitions are not consistent with the usage in the '137 patent, and for exactly this reason general purpose dictionaries are often unreliable sources for use in claim construction.

Ultimately both sides offer interpretations that deviate from the meaning of the word "queue" as it would be understood in everyday usage, and instead both offer definitions based on context from the patent. Medius contends that a steering queue is "a path or direction that a vehicle should travel." If this language is inserted into the claim, it would read, "generating a path or direction that a vehicle should travel that provides a direction for the local vehicle to move to avoid the identified object." In effect, such a limitation would only require generating a direction for the local vehicle to move to avoid the identified object. This proposed interpretation would create a redundancy by inserting the requirement of a direction of travel twice, and such an interpretation would be presumptively erroneous because it would read the word "queue" out of the claim. *Cat Tech LLC v. TubeMaster, Inc*., 528 F.3d 871, 885 (Fed. Cir. 2008).

Medius argues that it is acceptable to interpret "queue" in a manner that does not include a visual signaling component because it contends that the specification does not describe the steering queue as something that must be presented on a display; rather, Medius contends that the claim only requires the queue to be generated and the that the specification likewise only requires generation, not display. Though it is true that there is only one sentence in the specification that uses the term "steering queue" and that single sentence does not state that it is displayed in so many words, the context of the specification is unmistakably that the queue is

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something displayed for the user. The specification literally refers to it as "steering queue 109," which is illustrated as part of the GUI of Figure 9, making it a visual signal provided to the user. Within the specification, the sole purpose of the steering queue is to provide a signal to the user, and more specifically one that appears on a GUI. There is no description, suggestion, or hint of a steering queue of any other type or for any other purpose.

A person of ordinary skill, having read the '137 patent, would understand the steering queue to be a signal to the user, and therefore a steering queue that provides a direction would be understood to be a steering signal that provides a direction. Ford proposes that "queue" should be interpreted to mean "cue," but this interpretation might cause further confusion to the jury, particularly as jury instructions are read aloud and these two words sound the same. Ford's briefing also argued that the term queue meant a cue or signal, recognizing that the two words are interchangeable. For the reasons above, queue should be construed to mean signal.

Medius further argues that if a steering queue is a signal then it would be duplicative of the penultimate claim limitation, which requires generation of a warning indication. While advancing this position, Medius does not explain how the warning indication and steering queue are redundant. Within the specification, the warning indication is described as some form of message or other indicator that a collision condition exists. Medius does not point to anything in the specification to the effect that a warning indication also has a steering component. It is entirely consistent with the specification that the warning indication may be a visual or audible signal conveying that a collision condition exists and that the steering queue may be a different signal indicating a path of travel to avoid it. Accordingly, there is no redundancy in this interpretation.

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The next issue to consider is whether the steering queue must be generated after a possible collision condition is determined to exist. In some method claims, the steps must be performed in a particular order where such order is driven by logic, grammar, or a requirement in the specification. *TALTech, Ltd. v. Esquel Apparel, Inc.*, 279 Fed. Appx. 974, 977 (Fed. Cir. 2008). Ford contends that the steering queue must be generated in response to a possible collision condition, while Medius contends that this proposition imports a requirement from the warning indication limitation, which expressly refers to a possible collision condition.

As Ford points out, the claim requires that the steering queue provides "a direction for the local vehicle to move to avoid the identified object." The only reference to a steering queue in the specification similarly refers to a path of travel to avoid colliding with identified objects. '137 patent at 6:1-9. Medius argues that the specification describes generation of a steering queue without first determining that a collision with an obstacle is possible, referring to the patent at 5:62-6:6. But this very passage states that the steering queue shows a direction to avoid colliding with other vehicles, thereby making it clear that the steering queue is only generated because a collision condition is possible if the vehicle were to travel in directions other than the one indicated by the steering queue. Likewise, Medius points to nothing in the '137 patent that describes the use of a steering queue other than to indicate a direction that will avoid a collision. Still further, the final limitation of claim 29 expressly requires the steering queue to be for the purpose of avoiding the identified object, which necessarily means a path that will avoid a possible collision with the identified object. Medius correctly points out that the collision condition need not necessarily be imminent or highly probable, but consistent with the claim and the specification there must be at least some determined possibility.

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Ford proposes that the final claim limitation should be interpreted such that the step of generating a steering queue is "in response to" a possible collision condition. It is unclear whether there is some special meaning attached to this language, and in any event it is unnecessary to insert words into the claim interpretation where the actual purpose is to address the order of steps in the claimed method. Accordingly, the better approach is to find that the step of generating a steering queue must occur after the step of "comparing" indicates that a possible collision condition exists.

Conclusion

The term "steering queue" means "steering signal."

The step of "generating a steering queue that provides a direction for the local vehicle to move to avoid the identified object" must occur after the step in which "the comparison indicates a possible collision condition exists between the identified object and the local vehicle."

3. Processor for selectively connecting … audio sources

The parties next dispute claim language from US patent 6,778,073. The '073 patent is entitled "Method and Apparatus for Managing Audio Devices," and in general terms the claims at issue relate to a vehicle audio system in which different audio sources can be selectively connected to different output devices within a vehicle. Figure 2 from the '073 patent is reproduced below, and depicts a diagram of a graphical user interface for a vehicle that includes an audio manager in which several audio sources (a cell phone, CD player, or radio, for example) can be directed to several speakers 20A-20D.

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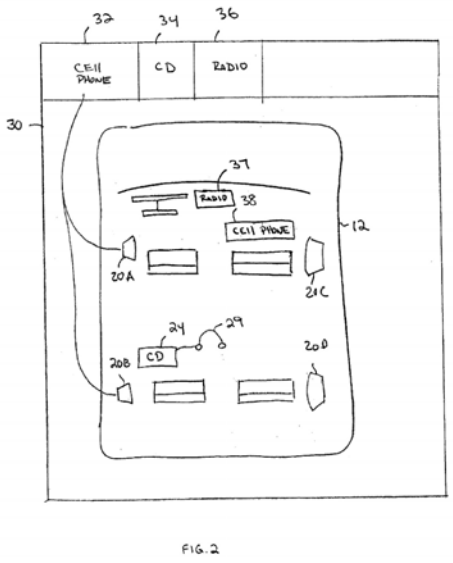

FIG. 2

Claims 1 and 10 contain similar disputed claim limitations related to the nature of a processor for selectively connecting the different audio sources to the audio output devices. Claim 1 requires (with the contested limitation underlined):

> 1. A vehicle audio system, comprising:
> a wireless audio sensor configured to wirelessly detect different audio sources brought into or next to a vehicle and identify the detected audio sources on a display;
> audio output devices for outputting audio data; and
> **a processor for selectively connecting a first one of the identified audio sources identified on the display to a first set of the audio output devices and selectively connecting a second one of the audio sources to a second set of the audio output devices**.

Medius proposed in its briefing that the underlined term should be interpreted to mean "a processor running software that physically or logically connects, based on a selection or system configuration, one of the audio sources that has been detected and identified on the display to a set of one or more audio output devices in the vehicle; and physically or logically connects, based on a selection or system configuration, another one of the audio sources that has been detected and identified on the display to another set of one or more audio output devices in the vehicle." At oral argument, Medius amended this proposed construction to delete the first

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instance of "physically or logically" (while apparently retaining the second instance of that term) and further by inserting "user or system" while deleting "or system configuration" from the proposed interpretation above. Thus, as revised at oral argument, Medius proposes the following interpretation (with strike-through for deletions, and underline for additions from its briefing): "a processor running software that ~~physically or logically~~ connects, based on a user or system selection ~~or system configuration~~, one of the audio sources that has been detected and identified on the display to a set of one or more audio output devices in the vehicle; and physically or logically connects, based on a selection or system configuration, another one of the audio sources that has been detected and identified on the display to another set of one or more audio output devices in the vehicle."

Ford proposes that this limitation means "a processor that makes an audio connection between a first one of the identified audio sources on the display and a selected first set of audio output devices while making an audio connection between a second one of the audio sources and a selected second set of the audio output devices."

Asserted claim 10 requires (again, with the contested limitation underlined):

> 10. A vehicle audio system, comprising:
> a wireless audio sensor configured to wirelessly detect different audio sources brought into or next to a vehicle;
> wireless audio output devices for outputting audio data having assigned priority values; and
> **a processor for selectively connecting the different audio sources to the audio output devices according to the assigned priority values for the audio data**.

The disputed limitation in claim 10 is similar, though not identical, to the limitation in claim 1, and the parties' positions are likewise similar to their positions with respect to claim 1. Medius also amended its proposed interpretation of the disputed limitation of claim 10 at oral

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argument, proposing that this term should mean (with underlining and strike-through as above): "a processor running software that ~~physically or logically~~ connects, based on one or more selections ~~or system configurations~~, one or more of the detected audio sources to one or more of the audio output devices." Ford proposes that this term should mean, "a processor that makes an audio connection between one of the audio sources and a selected audio output device while making an audio connection between another of the audio sources and another selected audio output device."

Based on the foregoing proposals, the parties dispute whether these two limitations (1) require a simultaneous connection of multiple audio sources to multiple audio output devices, (2) require an "audio" connection, as opposed to a more generic form of connection, and (3) encompass connections based on system selections, rather than those based on user involvement.

Simultaneity. The first question common to both disputed limitations is whether they require multiple audio sources to be connected to multiple audio output devices at the same time. Medius contends that simultaneity is not required, pointing to examples in the specification in which speaker connections are disrupted to make a second connection. Thus, Medius cites the '073 patent at column 3, lines 15-24 as providing an example in which a user desires to play the CD player on speakers by dragging the appropriate CD icon over the speaker icons on the graphic display. If the radio was previously connected to the speakers, the radio is disconnected so that the CD player output is connected. Because of the sequential connection that occurs if one source is disconnected in order to connect another, Medius reasons that the claims do not require simultaneous connections of multiple sources to multiple outputs.

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Ford argues that this same portion of the '073 patent (that is, column 3, lines 15-24) provides an example of multiple sources simultaneously connected to multiple outputs because it describes the CD player being connected to rear speakers while the car radio plays over front speakers. Medius contends that this misrepresents the specification because it does not expressly state that the arrangement is simultaneous. The specification fairly describes a situation in which the CD player can be connected to all four speakers, 20A-20D. It then states that if the speakers were already connected to the radio, the radio must be disconnected in order to connect the CD player. It goes on to describe "yet another example" in which the CD player is connected only to the rear speakers 20B and 20D. Medius is correct that the specification does not literally state that the radio is played on the front speakers at this same time, but Ford's characterization that this can be taken to mean that the CD and radio are playing at the same time is fair and does not appear to be a misrepresentation. Ultimately this portion of the specification lacks sufficient clarity to determine whether it intended to describe sequential or simultaneous play of different sources, and instead seems to be concerned with describing the ability to control the connection of devices and speakers.

Ford contends that another portion of the specification describes situations in which multiple sources are connected to multiple outputs at the same time. Specifically, at column 4, lines 55-64 the specification describes a collision warning signal that can be connected to all devices, even those that are wirelessly connected, so that every passenger in the vehicle is notified of a collision condition "regardless of whether the passenger is listening to an in-dash radio, talking on a cellular telephone, or listening to music on the portable CD player." The specification goes on to state that when the collision system no longer exists the system "reconnects the audio sources that were previously connected to the audio output devices." *Id*. at

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4:66-5:2. This latter passage specifically refers to sources (plural) being connected to outputs (plural), and reasonably conveys that the connections are simultaneous.

Based on the examples in the specification, the patent describes a wide array of possible connections between audio sources and audio output devices. In some examples, devices may be disconnected and connected sequentially, while in other examples they are connected simultaneously. The specification alone, however, provides little guidance as to the interpretation of the claims and neither party links these examples to specific claim language as an aid to claim construction. Rather, the examples are merely offered by the parties to demonstrate that the specification includes embodiments supporting either proposition.

Ford next argues that the prosecution history requires simultaneous audio connections. In a Patent Office Action mailed December 20, 2001, the Patent Office rejected the then-pending claims in part based on prior patent 6,275,231 to Obradovich. In the office action, the Patent Office characterized Obradovich as teaching a system in which a user may "relocate" speakers by clicking and dragging speaker icons. The Patent Office then concluded that based on Obradovich as combined with patent 6,163,711 to Juntunen, it would have been obvious to incorporate a display with icons "to allow the user to selectively determine which speakers the user wants the sound to be output." After a response to the office action the claims were again rejected in an action mailed August 1, 2002, essentially repeating the same bases for rejection.

Figure 18 from Obradovich is reproduced below. From the user interface illustrated in Figure 18, Obradovich allows the user to choose from among multiple audio sources such as radio, cassette, CD, video, and TV. Ford points to an accompanying description in which Obradovich explains that "the user is able to distribute selected audio signals to driver and passenger locations. These signals are communicated, through processor 103, to such subsystems

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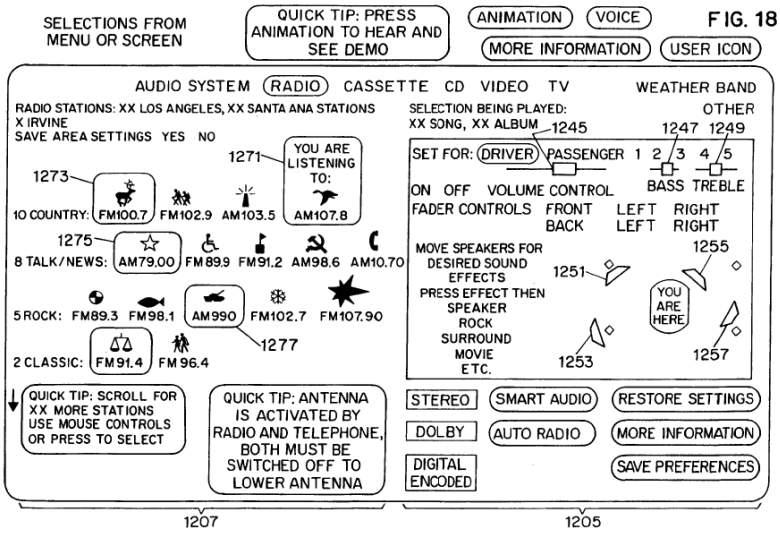
as headsets, earphones, directional speakers, etc." Obradovich '231 patent, at 20:16-20. From this description, Ford concludes that Obradovich teaches the ability to at least sequentially distribute any of multiple audio sources to subsets of selected audio outputs.



The patentees responded to the August 1, 2002 Office Action on January 7, 2003 by amending the claims and distinguishing Obradovich. Claim 1 was amended as follows (with added content underlined and deleted content in brackets):

> 1. A vehicle audio system, comprising:
> a wireless audio sensor configured to wirelessly detect different audio sources brought into or next to a vehicle and identify the detected audio sources on a display;
> audio output devices for outputting audio data; and
> a processor for selectively connecting [the different] a first one of the identified audio sources identified on the display to a first set the audio output devices and selectively connecting a second one of the audio sources to a second set of the audio output devices.

Claim 10 was also amended in response, as follows:

> 10. A vehicle audio system, comprising:
> a wireless audio sensor configured to wirelessly detect different audio sources brought into or next to a vehicle;
> wireless audio output devices for outputting audio data having assigned priority values; and

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> a processor for selectively connecting the different audio sources to the audio output devices[, wherein the different audio sources are assigned priority values and] according to the assigned priority values for the audio data.

Court Doc. 90-1, at p. 88. In the remarks accompanying the amendment, the patentees explained that claim 1 had been amended to overcome the prior art rejection. The patentees then stated: "Selecting different speaker locations is different from selecting different audio sources for different speakers. This allows a passenger in a rear part of the vehicle to listen to a portable CD player on rear speakers while a drive [sic: driver] can listen to a cell phone on the front speakers. This is not possible with the audio systems described in Juntunen or Obradovich." *Id*. at p. 86-87.

An applicant's argument that a prior art reference is distinguishable on a particular ground can serve as a disclaimer of claim scope, and this is the case even if the applicant distinguishes the reference on other grounds as well. *Andersen Corp. v. Fiber Composites, LLC,* 474 F.3d 1361, 1374 (Fed. Cir. 2007). Such statements may amount to a prosecution disclaimer where there is a clear and unambiguous disavowal of claim scope. *Omega Eng. v. Raytek Corp*., 334 F.3d 1314, 1326 (Fed. Cir. 2003). Though it must be clear, "applicants rarely submit affirmative disclaimers along the lines of 'I hereby disclaim the following…' during prosecution and need not do so to meet the applicable standard." *Saffran v. Johnson & Johnson*, 712 F.3d 549, 559 (Fed. Cir. 2013). Prosecution disclaimer may apply to limit the meaning of a claim term that would otherwise be read more broadly, and even in the absence of a disclaimer the prosecution history may be consulted as support for a construction already discerned by the claim language and written description. *800 Adept, Inc. v. Murex Sec. Ltd*., 539 F.3d 1354, 1365 (Fed. Cir. 2008). Where a disclaimer is found, it applies to all claims containing the same limitation, but does not extend to claims that omit the disclaimed subject matter. *Golight, Inc. v. Wal-Mart Stores, Inc*., 355 F.3d 1327, 1333 (Fed. Cir. 2004).

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Medius argues that the remarks accompanying the amendment, and the specification in general, merely point out that a simultaneous connection is possible but not that it is required. That conclusion is inconsistent with the language of claim 1, and the nature of the amendment. In its original form, claim 1 required a processor for selectively connecting the different audio sources to the audio devices. This structure already required the inclusion of multiple sources and multiple output devices but could be understood to broadly require the ability to accommodate multiple sources and multiple output devices without requiring simultaneous connections of such sources and output devices. As amended and issued in the '073 patent, however, claim 1 requires a processor for selectively connecting a first one of the audio sources to a first set of the audio output devices and selectively connecting a second one of the audio sources to a second set of the audio output devices. This amendment was made in response to a Patent Office action stating that the prior art taught or made obvious the ability to direct any one of multiple inputs to any subset of multiple speakers. In characterizing the amendment, the patentee explained that "Selecting different speaker locations is different from selecting different audio sources for different speakers." Obradovich had been cited as teaching the ability to select different speaker locations for any one of multiple audio sources. If there is anything in the amended claim that is "different from" this concept, it can only be that different audio sources are matched with different sets of speakers at the same time. The remarks accompanying the amendment plainly confirm that this is the point of distinction that the patentees believed would differentiate claim 1 from the prior art, by providing a specific example in which a passenger in the rear of the vehicle can listen to a CD player on the rear speakers while a driver can listen to a cell phone on the front speakers, noting that this is not possible with Juntunen or Obradovich. Medius argues that this is an example of what the system "can" do, not what it must do. But if

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there is an optional or exemplary portion of the response it is not the simultaneous play, but rather the specific matching of a CD player and a cell phone. The plain reading of the claims is that multiple selected inputs are simultaneously connected to multiple different selected outputs, and this configuration is illustrated in Figure 2 and described in the written description. While the claim amendment and accompanying remarks are clear enough to amount to an express disavowal, in this instance a disavowal is not required because the remarks confirm the construction that would already be discerned from the claim language and written description.

Ford contends that a similar "processor for selectively connecting" limitation in claim 10 should also be interpreted to require simultaneous connections between multiple audio sources and output devices. Likewise, Ford argues that identical claim language must be interpreted the same way, and prosecution disclaimers affect all claims containing the same affected limitations, citing *Intermatic, Inc. v. Lamson & Sessions Co.*, 273 F.3d 1355, 1366 (Fed. Cir. 2001). The flaw in Ford's position is that the overlap in the two claim limitations ends after the initial requirement of a "processor for selectively processing." While claim 1 was amended in response to a rejection to impose a simultaneous requirement, the similar language in claim 1 remained essentially in its original form. Thus, before amendment claim 1 required "a processor for selectively connecting the different audio sources on the display to the audio output devices." While claim 1 was amended to require first and second audio sources and output devices, the applicable portion of claim 10 was unchanged and still reads "a processor for selectively connecting the different audio sources to the audio output devices." Claim 10 was also distinguished by argument on the basis that it required the devices to be selectively connected in accordance with assigned priority values, and not based on the argument described above with respect to claim 1. Given the differences in the claim language and the separate and distinct

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remarks directed to claim 10 during patent prosecution, it would be improper to impose a simultaneity requirement upon every limitation that includes the term "processor for selectively connecting" unless the additional wording of the claim limitation imposes such a requirement.

Audio connection. Ford next argues that the nature of the claimed connection must be an "audio" connection. Ford reasons that the written description consistently refers to connecting audio sources to audio output devices in a way that allows the audio content from the source to play on the output device. Medius responds that an "audio connection" is unclear and that in any event it would be redundant because the claims already require a connection between an audio source and an audio output device. At the same time, Medius argued at oral argument that the connection does not actually require music to play.

Both claim 1 and claim 10 require "audio output devices for outputting audio data," which at least suggests that a connection is one in which audio data is output by the audio devices. The written description uses the term "connect" repeatedly, and in most (if not all) instances the connected device is playing audio data. Medius does not point to an instance in which the text describes a connection that is not one in which audio is playing. In the January 7, 2003 amendment discussed above, the remarks also explained that claim 1 required different audio sources to be output to different output devices at the same time. Within the context of the claims and the written description, it is clear that the term "connect" means that audio data is passing from the audio source to the output device.

At the same time, Medius correctly points out that the structure of the claims requires a processor that is "for selectively connecting," not a processor that has actually connected the sources to the outputs. Thus, the claimed audio system must be configured to allow the required forms of connections (such as a simultaneous connection of two sources and two outputs in the

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case of claim 1) but need not be construed in a manner such that it has actually made such connections. Though this may be technically correct, the processor nonetheless must be able to connect two sources and two outputs such that they can actually play audio at the same time.

Ultimately, an interpretation that requires an "audio" connection introduces a new term that is hardly clear and seems unnecessary. An audio connection is not itself a term of art, and using this construction will invite the parties to debate its interpretation to the jury. The term "connecting" is a commonly understood word that is used in an ordinary manner in the claims. For the foregoing reasons, this term should not be interpreted further.

User or system selection. Medius proposes that the applicable language in claims 1 and 10 should include the statement that the connections are based on a selection or system configuration, revised at oral argument to be based on a user or system selection. In support, Medius points to a passage from the '073 patent to the effect that a user can control the processor to make the selections ('073 patent at 2:4-14), while contending that in other configurations user involvement is not required ('073 patent at 2:11-23). Ford disputes the assertion that these passages provide support as Medius contends, but offers no contrary citations.

In this instance, Medius has departed from the task of interpreting claim language. It does not point to any term in the claim that it seeks to construe by inserting the language that a connection is based on a selection or system configuration, and instead it is introducing an entirely new condition into the claims. Though this condition may be textually supported, the task at hand is to interpret the language actually contained in the claims, not to import omitted limitations from the specification into the claims. The proposed language is divorced from the interpretation of claim language and cannot be adopted.

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Conclusion

In claim 1, the term "a processor for selectively connecting a first one of the identified audio sources identified on the display to a first set of the audio output devices and selectively connecting a second one of the audio sources to a second set of the audio output devices" means "a processor for selectively connecting a first one of the identified audio sources identified on the display to a first set of the audio output devices while selectively connecting a second one of the audio sources to a second set of the audio output devices."

In claim 10, with respect to the term "a processor for selectively connecting the different audio sources to the audio output devices according to the assigned priority values for the audio data" the proper construction should not include Ford's proposed requirements of an "audio" connection and simultaneous connections, nor Medius' proposed requirements of user or system selections. Instead, this limitation uses commonly understood words in an ordinary fashion, without any applicable prosecution disclaimer. Accordingly, no construction is required for this limitation.

4. Multiprocessor system

The next disputed claim limitations are drawn from many claims taken from six different asserted patents that the parties generally characterize as the processor patents. Each of the asserted claims requires a "multiprocessor system," a "multiprocessor network," or "a processor system, wherein a processor is coupled to at least a second processor." Although these terms are somewhat different from one another, the parties have agreed that they should be interpreted to mean the same thing.

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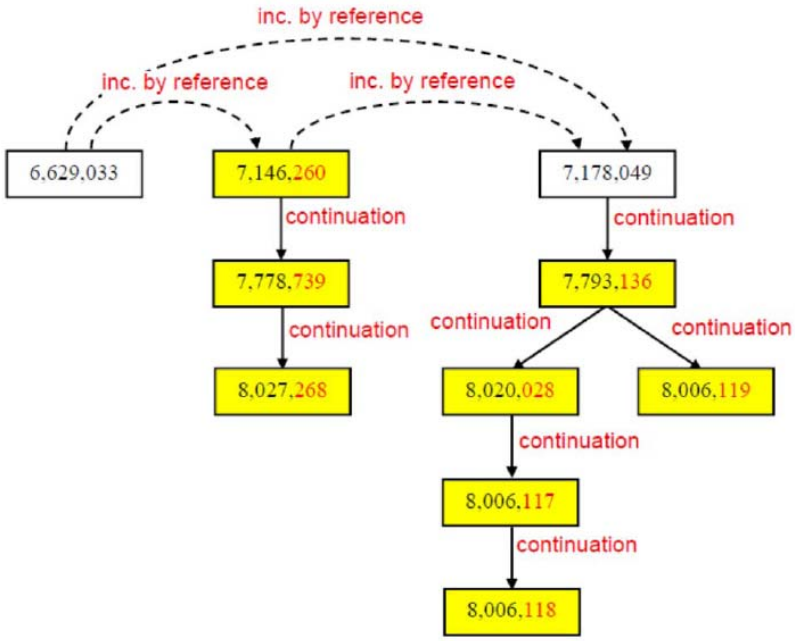

The asserted multiprocessor patents are all linked to one another as shown in the family tree illustration above, which was presented in Ford's opening claim construction brief. Court Doc. 148, at p. 23 of 59. The patents shown in yellow are asserted by Medius in this action, and the patent specifications in each branch are nearly identical to one another. Although patent number 6,629,033 is not asserted this action, both parties have cited it as containing passages relevant to the present claim construction in view of its incorporation by reference into the other asserted patent specifications. In addition, because the asserted patents have overlapping specifications tracing back to the '260 patent, for simplicity the parties frequently cited to the '260 patent specification when offering textual support for particular claim constructions, even where claims from other patents in the chain were being construed.

The limitations at issue specifically include:

- Multiprocessor system (found in the patent 7,146,260, claims 9 and 10; patent 7,778,739, claim 18; patent 7,793,136, claims 1, 3, 5, 9, 10, 15, 16, 18, 19, and

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28; patent 8,020,028, claims 1, 2, 3, 5, 9, 15, 16, and 31; and patent 8,006,118, claims 33 and 35).

- Multiprocessor network (found in patent 7,778,739, claims 1, 3, 5, 7, 9, 10, 15, and 16).
- A processor system, wherein a processor is coupled to at least a second processor (found in patent 8,006,119, claim 13).

Ford proposes that these limitations should be interpreted to mean "two or more processors that run common software to control the execution of applications across processors." Medius contends that they mean "two or more processors that each run software and are connected by one or more links."

Ford essentially argues that there is a difference between multiple processors and a multiprocessor system. According to Ford, multiple processors that are linked together only become a multiprocessor system when they each run common software that coordinates their functions and their execution of applications. Ford cites to excerpts from the applicable patents for support. For example, the summary of the invention in the '260 patent explains that the multiprocessor system includes multiple processors and a dynamic configuration system that runs on the multiple processors. Ford also refers to Figure 1 of the '260 patent, reproduced below, which is described as a "diagram of a car that has multiple processors that each run a Dynamic Configuration (DC) system." The accompanying written description explains that the vehicle includes several processors (numbered 14, 16, 18, and 20), and that each of the processors includes software that runs a Dynamic Configuration (DC) system 10. See '260 patent, at 2:31-34.

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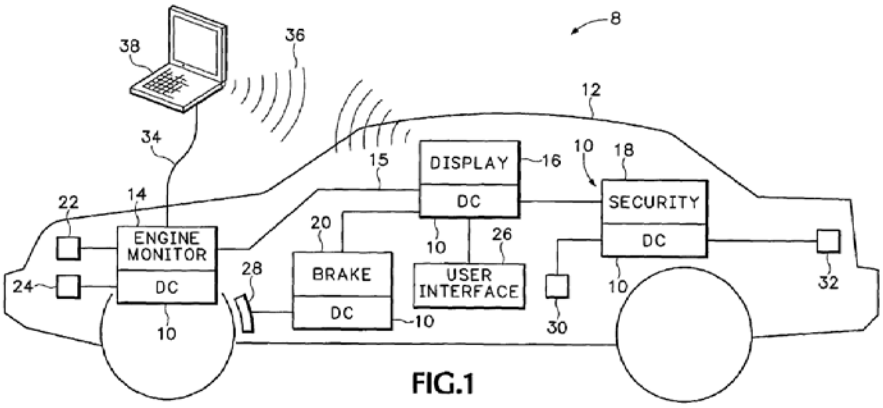

FIG.1

Other excerpts from the asserted patents contain similar statements. For example, the summary of the invention in the '033 patent states that the "multiprocessors each run an Open Communication system that controls how data is transferred between processors." '033 patent, 1:52-64. Another passage states that any processor that includes an OC system can be integrated into the system. '033 patent, 3:8-12. The '136 patent includes similar statements for what it labels a "Secure Real-time Executive," or SRE system, which runs in each processor and allows them to operate as one integrated system. See '136 patent at 2:56-56 and 5:10-14. The accompanying figures depict an SRE system in each processor in the system.

Medius responds that the patents do not require a common operating system to be running on each of the processors, although Medius is generally unable to point to textual support. In particular, Medius does not cite to any passages from descriptions of the inventions of the asserted patents that state that the control software can operate on fewer than all of the processors. Likewise, Medius does not cite to any exemplary embodiments in the patents in which a system is described as having control software running on some but not all of the processors in the system. Instead, Medius characterizes the common control software as a

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preferred embodiment of the invention and argues that Ford's proposed interpretation would read a feature of the preferred embodiment into the claims.

Medius also urges that several of the asserted claims expressly require the control software to be operating on one of the processors, and therefore it would be erroneous to interpret the claims to require it to be running on all or even more than one processor. For example, claim 12 of the '260 patent (not asserted) requires "the configuration system operated by one of the on-board processors…" Claim 18 of the '136 patent (which is asserted) requires "operating a configuration manager in one of the multiple processors in the multiprocessor system…" Asserted claim 1 of the '028 patent requires "at least one of the processors in the multiprocessor system is configured to…" Presumably the plain meaning of "at least one" would be broad enough to encompass fewer than all of the processors. Because common limitations must be interpreted the same way in each different claim in which they appear, and further because the parties have agreed that each of the multiprocessor limitations must be interpreted in the same way, the multiprocessor limitations cannot be interpreted differently in claims having an "at least one" modifier.

Both sides offered extrinsic evidence to support their respective positions. Ford submitted testimony from its expert Dr. Philip Koopman, a professor of electrical and computer engineering at Carnegie Mellon University, to the effect that the term "multiprocessor" is a specialized term of art in the applicable industry, and that a multiprocessor system is not merely multiple processors linked together but rather a highly integrated and coordinated set of processors. Dr. Koopman further opines that multiprocessor systems have a central control and a common operating system, drawing from *IEEE 100, The Authoritative Dictionary of IEEE Standard Terms* (2000), at 717, and B. Ram, *Computer Fundamentals: Architecture and*

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Organization (2007), at § 11.5. Ford further argues that even Medius' expert Professor Paul Min agrees that there is at least some coordination among the processors in a multiple processor network, and therefore the claim construction must specify at least some coordination.

Medius countered with testimony from Professor Min to the effect that the patents teach decentralized coordination with processors that operate independently but which communicate and exchange messages and data. Medius further offers its own definitions for the proposition that a multiprocessor system is more broadly understood to be a system with multiple processors. *Wiley Electrical & Electronics Engineering Dictionary* (2004), at 491 (defining "multiprocessor" as "pertaining to, utilizing, or incorporating two or more processors"); D. Patterson and J. Hennessy, *Computer Architecture, A Quantitative Approach* (2d Ed. 1996), at 634-39 (defining "multiprocessor system" as connecting multiprocessors together). Ultimately, these competing extrinsic sources do not provide clear guidance on the meaning of the terms as used in the claims and as they would be understood by a person of ordinary skill in the art.

In its briefing, Medius cites passages in the specifications that purportedly refute Ford's position on the nature of the control of the execution of applications across processors, but it appears that Medius initially misunderstood Ford's proposed construction. In particular, Ford's construction provides that the common software is to "control the execution of applications across processors." This could mean either (1) applications are running across processors, such that parts of single applications are performed on multiple processors and this activity is controlled by common software such as the DC or OC system, or (2) applications run on individual processors, but the common software enables control across multiple processors, including the control of the operation of the application programs. Medius argues that the first proposition is inconsistent with the specification, citing examples in which applications run on

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single processors. E.g., '260 patent at 1:57-59; '136 patent at 2:45-51. Ford counters, however, that its proposed construction only conveyed the latter meaning, not the former.

Medius further contends that these multiprocessor terms should not be construed to introduce specific requirements because additional claim limitations specifically impose such requirements and thereby define the multiprocessor. In many instances, the term first appears in the preamble of the claim, followed by the word "comprising." For example, claim 9 of the '260 patent reads:

> 9. A multiprocessor system used in a car, comprising:
> multiple processors located on-board the car and adapted to run different real-time car applications;
> different communication links coupling the multiple processors together; and
> a dynamic configuration system run independently on multiple different ones of the multiple on-board processors that each includes a device manager…

Claim 31 from the '028 patent even more succinctly reads, "a multiprocessor system, comprising…" Where the term is not in the preamble, it is followed by the term "configured to" and limitations describing requirements for the multiprocessor system. For example, claim 1 of the '136 patent includes the limitation "one or more of the multiple on-board processors coupled together into a multiprocessor system and configured to…" Thereafter, the claim contains several additional limitations defining the multiprocessor system.

Ford does not dispute this common claim structure, but urges that the failure to specifically interpret the term "multiprocessor system" would improperly render the term meaningless, citing *Cat Tech LLC v. TubeMaster, Inc*., 528 F.3d 871, 885 (Fed. Cir. 2008). Similarly, Ford contends that claim construction must give effect to all terms in the claim, citing *Bicon Inc. v. Straumann Co*., 441 F.3d 945, 950 (Fed. Cir. 2006). Given the structure of the claims at issue, however, these principles are inapplicable. A person of ordinary skill would

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understand that the limitations following the preamble or the "configured to" transition would define the requirements of the multiprocessor system.

Generally, a preamble is not limiting "when the claim body describes a structurally complete invention such that the deletion of the preamble phrase does not affect the structure or steps of the claimed invention." *Catalina Mktg. Int'l, Inc. v. Coolsavings.com, Inc.*, 289 F.3d 801, 809 (Fed. Cir. 2002). Nor is a preamble limiting if it "merely gives a descriptive name to the set of limitations in the body of the claim that completely set forth the invention." *IMS Tech., Inc. v. Haas Automation, Inc.*, 206 F.3d 1422, 1434-35 (Fed. Cir. 2000). In the structure of the claims at issue, the term "multiprocessor system" is used in this nominative sense, providing a descriptive name to the set of limitations that follow, and in which the further limitations completely set forth the invention. As such, these multiprocessor terms, particularly where used in the preamble, are not limiting and need not be expressly construed. Though the multiprocessor terms are sometimes used for the first time in the body of an asserted claim instead of the preamble, the parties have agreed that these terms should be construed to mean the same thing in every instance, regardless of whether they appear in the preamble or in the body of the claim. This potentially raises an issue as to whether the precedent for interpretation of preambles is equally applicable to terms applying in the body of the claim, but in this instance even where these terms in the body of a claim rather than in the preamble, they are still used in the same nominative sense. Because these terms are frequently used in the preamble in a nominative sense, or used in the body of a claim in the similar nominative sense, and where they are grouped together to be construed the same way, the guidance for interpretation of terms in a preamble should be applied to these terms.

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Finally, Ford's proposed interpretation is wholly or largely redundant of other limitations already found in the asserted claims, and therefore its proposed interpretation is unnecessary and would cause confusion. For example, claim 9 of the '260 patent expressly requires "a dynamic configuration system run independently on multiple different ones of the multiple on-board processors that each includes a device manager…" Other claims, such as claim 1 from the '136 patent, generally define what the multiprocessor system must be configured to do, including configuring the system to communicate with a new device, and selecting one of the multiple processors to operate a particular application. These and other similar limitations are versions of controlling the execution of applications across processors, which is also contained in Ford's proposed construction. It is therefore at least redundant to impose requirements that the processors must operate common software and control operation of applications where other limitations more specifically define the nature of these same requirements.

Conclusion

The terms "multiprocessor system," "multiprocessor network," and "a processor system, wherein a processor is coupled to at least a second processor" are used in a nominative sense and are defined by the limitations that follow. As such, they should be given their plain and ordinary meaning as defined by the limitations that follow these terms, and need not be separately construed.

5. Distributed processing system

Ford and Medius next dispute the meaning of "distributed processing system." The parties agree that a distributed processing system is a particular type of a multiprocessor system, but they disagree as to what makes a distributed processing system different from the more

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general multiprocessor system. This term appears in several asserted claims, including '028 patent claim 31; '118 patent claims 1, 2, 4, 6, 12, and 13; and '119 patent claim 1.

Medius proposes that a distributed processing system is "two or more processors, connected by links, that perform various tasks with and communicate with each other." In its briefing, the last clause was presented as "that perform various tasks and communicate with each other," but at oral argument Medius amended its proposed construction to insert the word "with" so that it now reads, "that perform various tasks with and communicate with each other." Because the requirement to perform tasks with each other was not advanced in Medius' briefing, it is unclear what sort of activity would amount to performing a task with each other.

Ford proposes that a distributed processing system is "a multiprocessor system or network in which applications can be distributed among multiple processors."

The common ground that a distributed processing system is a subset of a multiprocessor system stems at least partially from the structure of the claims containing the distributed processing system limitation. For example, asserted claim 31 from the '028 patent begins as follows:

> 31. A multiprocessor system, comprising:
> multiple processors operating together as a multiprocessor system, wherein the multiprocessor system is a distributed processing system configured to:
> …

The other asserted claims have a similar structure, including claim 1 from the '118 patent ("multiple processors configured to operate as a distributed processing system) and claim 1 from the '119 patent ("multiple processors, wherein one or more of the processors are configured to operate in a distributed processing system"). Notably, the structure of claim 31 adds several layers to the definition of the system by providing that the multiple processors must operate as a

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multiprocessor system, and that the multiprocessor system must further operate as a distributed processing system. Plainly there must be a distinction between (1) multiple processors, (2) operation as a multiprocessor system and (3) a distributed processing system.

Medius contends that there are multiple distributed processing embodiments described in the specifications, and that they collectively support its interpretation. While the several patent specifications describe a variety of processing structures, they must be closely reviewed to determine whether the excerpts are describing multiprocessor systems or distributed processing systems.

Medius first refers to the '033 patent (which does not actually include an asserted "distributed processing" claim) as describing a configuration for a distributed processing system. A particular cited passage states that "one or more applications can be run in the same processor at the same or at different times." '033 patent at 3:31-33. This particular excerpt adds nothing to clarify the meaning of distributed processing because it is not necessarily describing an attribute unique to a distributed processing system. Instead, it is directed to the assignments a single processor might have, noting that a single processor can run more than one application.

The '136 patent includes a description in the background of the invention explaining that the Java programming language is expressly designed for the distributed environment of the Internet. '136 patent at 1:19-21. It goes on to explain that "Java can be used to create complete applications that may run on a single computer or be distributed among servers and clients in a network." *Id*. at 1:21-23. This statement would support the position that distributing an application among multiple processors is a form of distributed processing.

A later excerpt, referring to the Jini distributed system, states that "the Java application environment provides a good computing platform for distributed computing because both code

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and data can move from machine to machine." *Id*. at 1:39-43. From this explanation, Medius concludes that the movement of either code or data are examples of performing various tasks and communicating with each other. Ford, however, reasons that both code and data must be shared, not data alone, and that the interpretation of performing tasks with one another is too vague and fails to accurately describe a distributed processing system. Similarly, Ford argues that the movement of data alone does not differentiate a distributed processing system from a multiprocessor system because it would be a required feature of a multiprocessor system, in which the multiple processors are linked together in order to communicate (and thereby exchange data).

The general background description in the '136 patent makes it clear that Java applications can be executed in a variety of environments because single applications may run on a single computer or they may be distributed among servers and clients in a network. Though both situations are described in the '136 patent, it does not appear that both situations are described as being distributed processing implementations. Rather, the implementation in which single applications are "distributed among servers and clients in a network" would be understood to be the distributed processing embodiment.

Ford further argues that the '136 patent explains that applications *and* parts of applications are distributed among the multiple processors in a distributed processing system, pointing to an excerpt stating that "A reconfiguration manager 60 monitors the operation of the different processors in the system and reassigns or reconfigures Java applications and Java threads to different processors according to what processors have failed or what new processors or applications have been configured into system 15." See '136 patent at 3:43-47. '260 patent at 2:38-41. Another excerpt describes a configuration manager and a task manager that

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"dynamically control how different Java threads are initialized, distributed and activated on different processors." '136 patent at 4:56-59. From the foregoing excerpts, a person of ordinary skill in the art would understand distributed processing to include the use of multiple different processors to perform the computing tasks (whether in the form of threads or otherwise) of a single application, as well as the distribution of single applications to different processors.

A key question is whether the movement, or distribution, of entire applications from one processor to another is sufficient to define a distributed processing system, or whether such a system must also be able to distribute processing tasks from single applications to multiple processors. Medius contends that the movement of applications from one processor to another is a particular example of distributed processing, and likewise that this function amounts to "performing a task with" in accordance with its proposed interpretation, but that dividing the operation of a single application across more than one processor is not required. This pinpoints the primary distinction between the two proposed claim interpretations because Ford contends that a distributed processing system must be able to *both* distribute individual applications to individual ones of the multiple processors in the system, as well as to divide and distribute a single application across multiple processors so that the multiple processors may work together to handle the processing tasks of the single application.

Various excerpts from the specifications refer to the ability to move applications from one processor (for example, where a processor has failed) to another processor that can take over the application. E.g., '033 patent at 2:58-61. Ford heavily relies on the excerpt from the '136 patent referring to the ability of the system to reassign or reconfigure Java applications and Java threads to different processors. But Ford also points to excerpts describing the distribution of

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entire applications and agrees that the distribution of an entire application is a feature of a distributed processing system. See '033 patent at 2:58-61.

The passages in the specifications related to distribution of Java threads lead to a debate between the parties regarding whether a Java thread is an application, part of an application, a task, or something else. The issue is relevant to the question of whether an application is somehow split and distributed among processors or, instead, whether the processing tasks required by an application are dispersed among multiple processors. Medius urges that a Java thread is a task, not an application or even a part of an application, citing to its expert Professor Min for support. Professor Min, however, merely states that "A Java thread is not necessarily an application." Court Doc. 123-2, at ¶82. He then states that the '118 patent makes it clear that they are not the same thing because it states that the reconfiguration manager "reassigns or reconfigures Java applications and Java threads according to what processors have failed or what new processors and applications have been configured into system 15." *Id.* at ¶82, citing '118 patent at 3:48-52. Testimony from Ford's expert Dr. Koopman is consistent, opining that a thread would be understood to be part of an application, not an application in itself, and that particular processing tasks required by an application (that is, "threads") can be distributed across multiple processors in order to run a single application. Regardless of whether a thread is technically a part of an application, the parties generally agree that a thread is a processing task in support of operation of an application.

Both parties further offered definitions in support of their positions. Medius offers that "distributed processing" has been defined as "a design in which data is processed by more than one processor," and "[a] form of information processing in which work is performed by separate computers linked through a communications network." *IEEE 100: The Authoritative Dictionary*

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of IEEE Standard Terms (7th Ed. 2000), at 328. It offers another definition as "the use of multiple linked processors or computers to process data." *Microsoft Press Computer Dictionary* (56h Ed. 2002), at 168. Extrinsic definitions offered by Ford are substantially similar, defining distributed processing as "data processing in which some or all of the processing, storage, and control functions, in addition to input/output functions, are dispersed among data processing stations." *IBM Dictionary of Computing* (1994), at 209-10. Collectively, these definitions make it clear that in a distributed processing system the processing tasks required by the system are somehow dispersed across multiple processors.

Medius further argues, particularly through the submission of testimony from Prof. Min, that a distributed processing system only requires the sharing of data among processors and need not control the distribution of applications, in whole or in part, among processors. In particular, Prof. Min opines that "a distributed processing system distributes ***data*** to be processed, i.e., not necessarily ***applications***." Court Doc. 123-2, at ¶77 (emphasis original). While it is correct that data is shared in a distributed processing system, the excerpts make it clear that the data sharing is a byproduct of the distributed processing of applications that must access the data. For example, Prof. Min refers to the '118 patent at column 4, lines 55-62, and while this excerpt refers to the redirection of data it is specifically because a particular application or thread has been redistributed to a new processor and the new processor must also access the necessary data.

Medius proposes that a distributed processing system is "two or more processors, connected by links, that perform various tasks with and communicate with each other." In a multiprocessor system there are also two or more processors that are connected by links to enable communication with each other. The multiple processors in a multiprocessor system perform various tasks, though they need not necessarily perform tasks "with" each other. In the

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course of introducing its revised interpretation, Medius further states that "Ford also mistakenly claims that Medius's construction does not require any processing to be moved among the processors in the distributed processing system." Court Doc. 151, at p. 13 of 35.

At oral argument, Medius explained its perceived distinction between a multiprocessor system and a distributed processing system. In a distributed processing system, Medius explained, "you've got some sort of task that is common or handled by two or more processors" while a multiprocessor system "doesn't require these independent processors to be doing anything the same." This point of distinction is consistent with the evidence canvassed above, in which threads or other processing tasks for the applications are dispersed across multiple processors in the system.

Collectively, the specifications explain that distributed processing involves the distribution of the computing tasks for applications across multiple processors. While this may amount to performing tasks with each other, Medius' proposed interpretation is too vague and may sweep in computing tasks unrelated to distributed processing. Moreover, Medius points to no examples, textual or otherwise, of tasks that are performed with each other besides the processing of the applications.

Conclusion

The term "distributed processing system" means "a multiprocessor system in which the processing tasks for applications can be distributed among multiple processors."

6. Application

Most of the asserted patents include the term "application," and the parties dispute the meaning of this term as well. In particular, "application" is found in claims 9 and 10 from the '260 patent; claims 1, 2, 13, and 18 from the '739 patent; claims 1, 2, 13, and 18 from the '136

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patent; claims 1, 2, 5, 11, 12, and 21 from the '268 patent; claims 1, 2, 13, and 31 from the '028 patent; claims 1, 2, and 16 from the '117 patent; claims 1, 2, 33, and 35 from the '118 patent; and claims 1, 11, 12, 13, 24, and 25 from the '119 patent. As one example, claim 9 from the '260 patent reads:

> 9. A multiprocessor system used in a car, comprising:
> multiple processors located on-board the car and adapted to run different real-time car **applications**;
> different communication links coupling the multiple processors together; and
> a dynamic configuration system run independently on multiple different ones of the multiple on-board processors that each includes a device manager…

Medius contends that an application is "software that performs a task to fulfill a specific need of the user (e.g., play audio, dial the phone, or control the brakes)." Ford contends that an application is "an executable computer program that, with the aid of support and operating system software, helps a user perform a specific task. The differences between these two proposed interpretations include whether an application is an executable program or more generically software, whether it requires the aid of support and operating system software, whether it must perform a task or only help perform a task, and whether illustrative examples should be part of the interpretation.

The specifications describe a variety of applications, though many of the descriptions shed little or no light in the above questions. For example, the '260 patent explains that the processors monitor different applications such as a braking application or a speed sensing application. '260 patent, at 6:9-15. Additional specific applications are listed, including automatic brake control, audio player control, video player control, airbag deployment monitoring, display control, navigation control, and sensor monitoring. '260 patent, at 10:5-13.

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While these would surely be tasks of some sort, these excerpts do not explain whether the applications perform or only help perform the tasks, for example.

There is very little in the specifications related to whether an application is either software or an executable computer program. Ford contends that the patents consistently describe applications as high level computer programs that can be moved from one processor to another for execution, citing the '033 patent at 3:28-33, 5:11-14, 7:1-3; '260 patent at 3:5-13, 5:32-35; and '136 patent at 2:22-27. These excerpts generally describe the function of applications and the movement to various processors, but none of them define applications as standalone executable programs rather than software more generally.

At the same time, Medius does not refer to direct support in the specification for the proposition that an application is not an executable computer program. Primarily, Medius relies on a generic paragraph at the end of each of the patents stating:

> For the sake of convenience, the operations are described as various interconnected functional blocks or distinct software modules. This is not necessary, however, and there may be cases where these functional blocks or modules are equivalently aggregated into a single logic device, program or operation with unclear boundaries. In any event, the functional blocks and software modules or described features can be implemented by themselves, or in combination with other operations in either hardware or software.

See, e.g., 137 patent at 6:28-36. According to Medius, this means that the specification's description of applications as "distinct software modules is merely for the sake of convenience and that applications may alternatively be implemented in a way that has unclear boundaries. Ford counters that this paragraph does not specifically mention applications, and that such boilerplate language cannot be used to contradict plain meanings and consistent usages elsewhere throughout the specifications, citing *IP Innovation, LLC v. Ecollege.com*, 156 Fed. Appx. 317, 321-22 (Fed. Cir. 2005). In *IP Innovation*, the patent specification disclosed only one

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embodiment and characterized that embodiment as "the invention." Similar descriptions of "the invention" were made in remarks accompanying an amendment during prosecution. Boilerplate language at the end of the patent did not specifically address any inventive features in any detail and therefore could not overcome the many descriptions of "the invention." In this case, the paragraph quoted above is surely boilerplate and does not include the word "application," but it does convey that interconnected functional blocks can be implemented with indistinct boundaries.

Ford's clearest evidence that an application is an executable program is in the form or extrinsic definitions. Thus, Ford offers a definition stating that "higher level user programs are often called application programs (or simply, applications). An application is a standalone program that describes step-by-step procedures…" Haldar, Sibsankar et al., *Operating Systems* (2010) at 11-13. This extrinsic source, particularly in that it is dated some ten years or more after the date of the invention, is of limited value. The definition also does not align with Ford's proposed interpretation. While it does equate programs and applications, it does not include the term "executable." This particular word seems to add nothing to the definition because all applications, software, and programs must in some sense be executable. The specifications include language stating that the described software modules can be implemented in a manner having unclear boundaries, and that would at least suggest that a standalone program is not required. Though this language is in the form of boilerplate at the end of the specification, it is nonetheless specific enough that it should not be contradicted by an extrinsic definition of much later vintage.

Ford further contends that an application must be construed to require the aid of support and operating system software. Both sides agree that an application, as the term is used in the

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asserted patents, is distinct from support and operating software, but disagree regarding whether it should be construed to require the aid of such support and operating software. Ford's position relies partially on illustrations such as Figure 2 from the '033 patent, reproduced below.

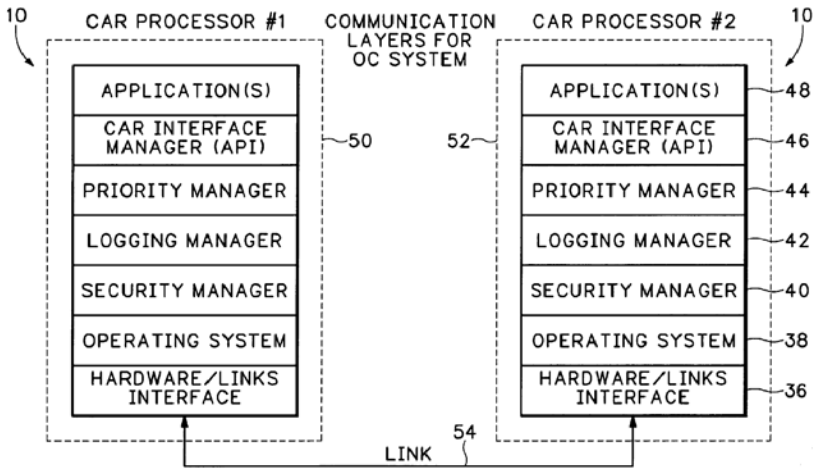

FIG.2

In this illustration, applications are shown as being distinct from other functional blocks, such as the operating system and other support software. Other illustrations, such as Figures 5 and 7 from the '260 patent, depict applications in separate blocks from other support software such as device managers.

It may be accurate that, as used in the specifications, applications operate with the aid of support and operating system software. Even so, these support software systems do not define what an application is, but rather explain a typical environment in which an application operates. Medius further observes that some of the asserted claims, or other claims that depend from them, separately recite a support software requirement and therefore it would be redundant or conflict with notions of claim differentiation to impose such a requirement in the definition of application. For example, asserted claim 9 from the '260 patent requires a dynamic configuration

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system as well as applications. Accordingly, inserting "with the aid of" imposes a requirement that goes beyond interpretation.

The parties further dispute whether an application must perform a task to fulfill a specific need, or whether it must "help" a user perform a specific task. The distinction between "helping" a user perform a task and actually performing the task is not clearly articulated by Ford. There is no reference to intrinsic evidence using the word "help," nor is there any extrinsic evidence. Ford cites patent excerpts as providing support, but the cited passages more properly describe an application performing a task rather than helping perform a task. *See, e.g.*, '136 patent at 2:44-55 (referring to audio, brake, security, and sensor applications).

Finally, Medius proposes to incorporate example tasks into the construction, including "play audio, dial the phone, or control the brakes." This portion of the proposed construction is intended to convey examples of applications so that they would be understood to be distinct from operating systems and support software, and Medius has framed it this way rather than more plainly stating that applications are distinct from operating systems and support software. Ford's main quarrel with this approach is that at least one of the examples (dial the phone) is not expressly mentioned in the asserted patents. Because the chosen examples are arbitrary and subject to at least some debate, and further because the parties agree that applications are distinct from operating systems and support software, the better approach is to include this distinction directly rather than by example.

Conclusion

The term "application" means "software, other than operating system and support software, that performs a task to fulfill a specific need of a user."

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7. Select and Identify

Certain of the asserted patents include a requirement to either select a processor or to identify a processor, and the parties disagree as to the meaning of the applicable claim limitations. Claim 1 from the '739 patent includes the following limitation:

> 1. A system having multiple on-board processors configured to operate within a vehicle, comprising:
> one or more of the multiple on-board processors coupled together through multiple links into a multiprocessor network, wherein the multiprocessor network is configured to:
> …
> using the data manager to **select a particular one of the on-board processors for operating the second software application** selected from the memory:
> …

Claim 1 from the '136 patent similarly includes the same limitation underlined above:

> 1. An application management system for a vehicle having multiple on-board processors, comprising:
> one or more of the multiple on-board processors coupled together into a multiprocessor network and configured to:
> …
> **select a particular one of the on-board processors for operating the second software application** selected from the memory:
> …

There is very little dispute between the parties regarding the proposed interpretation of the highlighted limitation. Medius proposes that this limitation means "select an on-board processor that can execute the second software application." Ford proposes that it means "choose one of the multiple processors that can execute the second software application." Both parties offer the identical language "that can execute the second software application," and therefore the proposals differ in that Ford replaces "select" with "choose," and Ford retains a literal reference to multiple processors while Medius omits any express reference to multiple processors.

With respect to the words "select" and "choose," the parties agree that they are synonymous. Although it may be accurate to replace the word "select" with the word "choose,"

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this effort would be an "obligatory exercise in redundancy" by replacing claim terms with their synonyms. *U.S. Surgical Corp. v. Ethicon, Inc.*, 103 F.3d 1554, 1568 (Fed. Cir. 1997). Given that the word "select" is an ordinary word, used in its ordinary sense in a way that would be readily understood, there is no reason to construe it by replacing it with a synonym.

The second issue is whether "a particular one of the on-board processors" should be construed to mean "one of the multiple processors" (as Ford contends) or "an on-board processor" (as Medius contends). The claim language plainly refers to multiple processors, and Ford's proposed construction emphasizes that point. Medius contends that the plurality requirement is provided elsewhere in the claim and need not be repeated here. Again, there is no genuine dispute over this claim language, and the limitation is written in plain language that is not made clearer through the proposed constructions. Accordingly, there is no reason to substitute a new set of words for those used in the claims.

A related dispute stems from the "identify" limitation found in claim 21 of the '268 patent, which requires:

> 21. A vehicle audio system, comprising:
> a wireless transceiver configured to wirelessly detect an audio source brought into or next to a vehicle; and
> an application management system configured to:
> …
> **identify a processor in the vehicle audio system that can input or output the identified data types;**
> in response to detecting the audio source, reconfigure the vehicle audio system to run a first application on the processor that processes the identified data types received from the audio source…
> …
> in response to detecting the additional audio source, reconfigure the vehicle audio system to run a second application on the processor that processes the identified data types received from the additional audio source…
> …

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Unlike the prior limitations from the '739 and '136 patents, the disputed limitation in the '268 patent (underlined above) uses the word "identify" rather than "select," and does not expressly refer to a particular one from among multiple processors. Ford proposes to interpret this limitation in a manner similar to the "select" limitations, so that it would mean "choose one of multiple processors that can input or output the identified data types." Medius contends that no construction is required for this limitation.

The primary dispute is whether the term "identify" as used in claim 21 should be understood to require a choice or selection from among multiple options, or whether it has a more nominative meaning that does not require more than one option. Medius argues that the terms "select" and "identify" are used differently in the asserted patents, and that this term is entitled to the presumption that a different word choice conveys a difference in meaning. Where there is a requirement to choose from among multiple processors, Medius argues, the claims expressly refer to multiple processors. Medius also cites an instance in which the word "identify" is used in the claims in a manner that does not mean to choose. For example, claim 18 in the '739 patent includes a requirement to "identify data codes in the wireless signals from the new device and use the data codes to identify the first type of data processed…" Certainly in this example the term "identify" relates to determining which data codes are present, rather than choosing data codes.

Ford responds that the word "identify" can have multiple meanings, and that in claim 21 of the '268 patent it is used to refer to making a selection. In support, Ford refers to an excerpt from the '268 patent stating that "the configuration manager 44 identifies one of the processors in the multiprocessor system that is running a non-critical application." '268 patent, at 6:31-33.

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This excerpt is not concerned with giving a name to a processor, but rather to finding an applicable processor from among several other processors.

Ford also contends that the terms "select" and "identify" are used interchangeably throughout the family of asserted patents. For example, claim 1 from the '739 patent includes the limitation "identify a second software application from among multiple different software applications" while claim 18 from the '739 patent includes the identical limitation except that "identify" is replaced with "select." Claims 1 and 18 from the '136 patent also contain this same limitation, with one using "identify" and the other using "select." Moreover, claim 1 in each of the '739 and '136 patents treats select and identify as synonyms by using the term "select" to refer to an antecedent requirement to "identify." Thus, claim 1 from the '739 patent reads:

> 1. A system having multiple on-board processors configured to operate within a vehicle, comprising:
> …
> **identify** a second software application from among multiple different software applications located in a memory…
> using the data manager to select a particular one of the on-board processors for operating the second software application **selected** from memory…

Thus, the claim requires a second software application to be "identified" but later referred to the second software application that was "selected" instead of one that had been "identified." Ford argues that this means select and identify are synonymous.

Within the patent specifications, the term "identify" is used to refer to the process of finding or selecting one from among multiple possible options. For example, the '268 patent includes the following descriptions (emphasis added):

- The DC system 10 automatically identifies another processor with capacity to run the braking control application currently running in processor 20. (2:48-51).

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- A data manager 42 identifies a type of data input or output by a new processor and identifies other processors or devices in the multiprocessor system that can output data from the new device or input data to the new device. (3:37-40).
- When reconfiguration is required, one of the reconfiguration managers 44 first tries to identify a processor that has extra processing capacity … (6:13-15).
- If no backup resources can be identified in block 136, the configuration manager 44 identifies one of the processors in the multiprocessor system that is running a non-critical application. (6:30-33).

In some instances (such as "identifies a type of data") the term is used to convey a process of determining what something is, such as what kind of data is being input. In other instances, the term is used to convey finding one from among several candidates (such as "identifies other processors"). These usages of the term "identify" indicate that the particular meaning is a matter of the context of the description with which the term appears, rather than a single common meaning in every situation.

The context of the meaning of the term "identify" is further shaped by the nature of the invention as described in the specification. The '268 patent is entitled "Method and Apparatus for Dynamic Configuration of Multiprocessor System." The text explains in the background of the invention that a key problem sought to be addressed is that the many processors in prior art systems generally do not talk to each other. Some processors are underutilized, and reconfiguration of any one of the multiple processors is described as being impossible. The summary of the invention begins by stating "a multiprocessor system used in a car, home, or office environment includes multiple processors that run different real-time applications." Every

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embodiment of the invention described in the specification is one that includes multiple processors.

Medius points to a single sentence in the specification that it contends is an embodiment with a single processor. Specifically, Medius points to the '260 patent at column 3, lines 16-18 (which corresponds to the '268 patent at column 3, lines 21-23), stating "any single or multiprocessor system located either inside or outside of car 12 can communicate and exchange data using the OC system 10." Because a key aspect of the invention is to enable interaction with new devices that are brought into the system, a reasonable interpretation would be that a multiprocessor system that is set up in accordance with the invention is able to communicate and exchange data with any new single or multiprocessor system added to it. Even if this excerpt could be read to describe a single processor system in accordance with claim 21 of the '268 patent, it does not explain how the limitation "identify a processor" aligns with such an embodiment.

Given the above background, the requirement to identify a processor in the vehicle audio system that can input or output the identified data types would be understood to require the system to find an applicable processor from among the multiple processors. Within the context of claim 21, if the system only included a single processor then the step of identifying a processor would be rendered meaningless. If there is only one processor, all of the actual processing occurs on that single processor and there is no identifying to do. Medius does not point to any activity that would actually occur to satisfy the identifying step in a single processor system, nor does it point to any description in the '268 patent that refers to identifying a processor in a single processor system. Within the context of the claim and the specification, the step of identifying only has meaning when there are multiple processors to choose from.

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The additional limitations in claim 21 further confirm this understanding. Claim 21 requires a first application to be run "on the processor that processes the identified data types received from the audio source," and a second application to be run "on the processor that processes the identified data types from the additional audio source." The term "the processor that processes" conveys a reference to a particular processor from among multiple possibilities, and in particular the one that was identified to process the identified data types. A person of ordinary skill in the art would understand that the requirement to "identify" a processor means to select on of multiple possible processors.

Conclusion

The limitation "select a particular one of the on-board processors for operating the second software application" uses commonly understood terms in their ordinary sense, such that no construction is required.

The limitation "identify a processor in the vehicle audio system that can input or output the identified data types" means to "select one of multiple processors that can input or output the identified data types."

8. Reconfigure/configure to run an application

The parties next dispute the meaning of limitations containing the terms "configure" or "reconfigure" as used in several asserted claims. For example, claim 9 of the '260 patent reads:

> 9. The vehicle audio system according to claim 1, wherein the on-board processor is configured to run a navigation system that operates in conjunction with a global positioning system.

Claim 1 of the '739 patent reads:

> 1. A system having multiple on-board processors configured to operate within a vehicle, comprising;

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> one or more of the multiple on-board processors coupled together through multiple links into a multiprocessor network, wherein the multiprocessor network is configured to:
> …
> configure the particular one of the on-board processors to run the second software application...

Claim 18 from the '739 patent is substantially similar, but requires a configuration manager to "reconfigure" the processor rather than to configure it. Collectively, this group of claims includes '260 patent claim 9; '739 patent claims 1 and 18; '136 patent claims 1 and 18, '268 patent claims 2 and 5; and '028 patent claim 1. Each of the asserted claims in this group includes a limitation requiring a processor to be configured or reconfigured to run an application or a specified system. Both parties agree that these terms should be interpreted in the same manner, and the dispute between them focuses on the meaning of configure or reconfigure rather than the surrounding language.

Medius contends that these limitations mean "set up to run an application." Ford contends that they mean "prepare the processor/system to start running an application." Though Ford prefers "prepare" and Medius prefers "set up," each side agrees that there is no meaningful difference between this portion of their respective positions. Rather, the difference is whether the set up or preparation must be "to run" or to "start running" an application.

Ford's proposed interpretation stems from the proposition that embodiments in the specification describe configuration occurring before applications start running. For this reason, Ford concludes the applications must not merely be configured to run, but rather configured to start running. As support, Ford cites to the '260 patent at 1:55-65, describing the addition of new devices to the multiprocessor system and the configuration of the processors to run the new applications associated with the new devices. Because the devices are "new," Ford argues that

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they could not have been previously running and therefore the applications start running after the configuration. Other passages describe the movement of applications to different processors and the configuration or reconfiguration of those processors to run the applications that have been moved to such new processors. '260 patent at 3:28-32; 5:48-51.

Ford further argues that in some instances the claims expressly state that the system was not configured to run the application prior to the claimed configuration. Thus, claim 21 of the '268 patent includes the limitation "in response to detecting the audio source, reconfigure the vehicle audio system to run a first application," and further provides that "wherein the vehicle audio system prior to detecting the audio source is not configured to run the first application." Ford reasons that if the system is not configured to run the application before the reconfiguration, then reconfiguring it to run the application must mean reconfiguring it to start running for the first time.

Ford bolsters its position with extrinsic evidence, offering a definition of configure as "to initialize a device so that it operates in a particular way." *IEEE 100, the Authoritative Dictionary of IEEE Standard Terms* (2000), at 217.

Medius responds that the claims define a variety of situations, and in some claims the application is initially loaded in memory and is moved or downloaded to a processor that is configured or reconfigured to run the application. For example, claim 1 of the '739 application requires an application to have been "located in a memory in the multiprocessor network" but "currently not loaded in or operated by any of the on-board processors." In this claim the reconfiguration is expressly to facilitate running of the application for the first time (as with claim 18 from the '739 patent, claims 1 and 18 from the '136 patent, and claim 1 from the '028 patent, each of which has substantially identical limitations). By contrast, Medius contends,

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claim 9 of the '260 patent does not have the same express requirement, instead requiring only "a configuration manager that automatically reconfigures the multiprocessor system to run the real-time car applications."

Medius further argues that certain claims expressly include a "start" requirement, and therefore at least by the doctrine of claim differentiation this requirement presumptively should not be imposed on claims without the express requirement. Claim 1 of the '268 patent, for example, requires the system to configure a software application, while claim 11 requires the system to "configure and initiate" the software application. In the absence of any evidence to the contrary, the use of different terms connotes different meanings. *Applied Med. Res. Corp. v. U.S. Surgical Corp.*, 448 F.3d 1324, 1333 n.3 (Fed. Cir. 2006). Ford correctly notes that the claims are distinct even if "configure" means to prepare to start running, because this would require the system to be ready to start running without requiring it to actually start. Claim 11 would impose the additional requirement that it actually start running.

Medius also notes that the specification describes a reboot situation in which the configuration manager downloads an application from memory after that same application has failed. If necessary, the application can be moved to another processor, which is reconfigured to run the application. '260 patent at 5:61-67. Medius contends that in such a situation the application has already been running when the configuration or reconfiguration occurs, such that it would not be accurate to describe the configuration as a process to allow the application to "start" running. Ford responds that the reboot only occurs once the application stops running, and therefore it must be set up and started again in the reconfiguration process. Ford further contends that there is no description of configuration or reconfiguration for an application that is actually running.

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Ford also argues that Medius disavowed its proposed construction during prosecution of the '268 patent. In the course of prosecution of the '268 patent, certain claims were rejected in view of a patent to Chiloyan. In the response, the patentee argued that Chiloyan did not suggest "moving the second software application from the vehicle memory to an on-board processor and configuring the on-board processor to run the second application and control the operation of the audio source…" Court Doc. 106-2, p. 69. This particular excerpt from the prosecution is not sufficiently unambiguous and clear to amount to a disavowal. To the contrary, it merely repeats the claim language providing that the processor is configured to run, and does not state that it is configured to "start" to run. Even if the effect is that the application will run for the first time on the specified processor, there is no disavowal that would limit the term "run" to mean "start to run."

Some of the claims containing the limitation at issue include separate limitations indicating that the application has never before been run by the particular processor. With respect to those claims, there is no purpose in reiterating this separate requirement by interpreting "run" as "start to run." With respect to the other claims in this group, inserting a "start to" requirement would improperly read a limitation into the claims. Accordingly, the term "run" should not be interpreted to mean "start to run."

Conclusion

The terms "configure" and "reconfigure" mean "set up." The term "to run" an application does not require further construction.

9. Dynamically configure … application

Some of the disputed claims include a requirement to "dynamically configure" an application, and the parties dispute the meaning of this term as well. Both parties agree that a

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dynamic configuration is somehow different from a configuration, but they disagree as to what makes a dynamic configuration different. Ford contends that a dynamic configuration is one that occurs in response to operating conditions, and therefore proposes that it should mean "prepare an application to start running in response to operating conditions." Medius contends that "dynamic" relates to a requirement that the system is running during configuration, and therefore proposes that it should mean "set up or modify a prior setup while the system is operating." The claims in dispute include '268 claims 1 and 11, and '117 claim 1.

The applicable portion of claim 1 from the '268 patent reads:

> 1. A vehicle audio system, comprising:
> a wireless transceiver configured to wirelessly detect an audio source brought into or next to a vehicle; and
> logic circuitry responsive to detection of the audio source configured to:
> …
> responsive to identifying the type of data, dynamically configure a second software application from within the vehicle to:
> …

Claim 11 omits the "responsive to" requirement:

> 11. A vehicle data processing system, comprising:
> a first data source in the vehicle;
> a transceiver configured to wirelessly detect and identify a second data source brought into or next to a vehicle; and
> a processor configured to:
> …
> dynamically configure and initiate the second software application in the on-board processor to control the second data source; and
> …

Claim 1 from the '117 patent requires:

> 1. A computer system, comprising:
> a memory;
> a real-time operating system;
> a user interface;
> one or more processors in a processing system, wherein the processing system is configured to:
> …

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> An application management system configured to:
> …
> responsive to verifying the data parameters as authorized, connect to the new device, dynamically configure an application to process the data types and launch the application…
> …

As an initial matter, the term "configure" should presumptively be interpreted to mean the same thing in all claims. *Pods, Inc. v. Porta Stor, Inc.*, 484 F.3d 1359, 1366 (Fed. Cir. 2007). As such, presumably the term "configure" means to "set up" and "configuring an application" to run and does not impose a requirement that it is set up to "start" running. Any different meaning attached to the term "dynamically configure" must be the result of the modifier "dynamically," rather than a different interpretation of "configure."

The specifications of the asserted patents offer very few clues about the difference (if any) between configure, reconfigure, and dynamically configure. Ford contends that the "dynamic" portion imposes a requirement that the configuration is in response to operating conditions, citing claim language in support. Claim 11 from the '268 patent includes a limitation requiring "responsive to allowing the connection with the second data source, connect the data source to an on-board processor." Thereafter, it requires the system to "dynamically configure and initiate the second software application." Thus, Ford reasons that the dynamic configuration is in response to an operating condition. Claim 1 more clearly requires "responsive to identifying the type of data, dynamically configure a second software application from within the vehicle." Claim 1 from the '117 patent is similarly structured, requiring "responsive to verifying the data parameters as authorized, connect the new device, dynamically configure an application to process the data types, and launch the application."

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Medius argues that the operating condition requirement is redundant in that it is separately required in claim 1 from each of the '268 and '117 patents, and that it is inconsistent with claim 11 from the '268 patent because the responsive limitation is insufficiently linked to the dynamically reconfigure limitation. As Ford points out, the construction would not necessarily be redundant to other limitations because the other operating conditions are more particular. While Ford proposes that a dynamic configuration is a configuration performed in response to operating conditions generally, claim 1 of the '268 patent requires the specific operating condition of identifying the type of data. This distinction may be sufficient to avoid the redundancy, but by itself does not mean that Ford's proposed construction is correct.

Ford further cites many excerpts from the specification to the effect that dynamic configuration happens in response to operating conditions. For example, Ford cites a passage found in the '268 patent (at 3:33-37) providing that "a configuration manager 44 in the processor 40 dynamically moves applications between processors according to user inputs and other monitored conditions in the multiprocessor system." Ford also cites the '268 patent at 2:41-47 and 5:53-62, and the '117 patent at 3:55-58 as supporting the position that dynamic configuration is in response to operating conditions. The problem with these excerpts is that they do not even include the term "dynamically," and instead only refer to configuration or reconfiguration. While they generally refer to a configuration or reconfiguration process that occurs in response to some form of user input or monitored condition, the description does not indicate that the "responsive" aspect is what distinguishes dynamic configuration from configuration more generally.

Medius offers an extrinsic definition in support of its proposed interpretation that a dynamic configuration occurs while the system is operating. The IEEE defines the term

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"dynamic" as "pertaining to an event or process that occurs during computer program execution." *IEEE 100: The Authoritative Dictionary of IEEE Standard Terms* (7th Ed. 2000) at 346. Ford also cites this same source for certain disputed terms, but does not cite to it for the meaning of "dynamic." Instead, Ford refers to the *IEEE* dictionary for the meaning of configure, as noted above. For dynamic, Ford turns to the Microsoft Press dictionary, which defines the term as "an adjective used to describe events or processes that occur immediately and concurrently, as opposed to those planned for in advance or reacted to after the fact." *Microsoft Press Computer Dictionary* (1994) at 137. Notably, the key part of Ford's definition is that it is immediate and concurrent, not that it is in response to a condition.

From the above excerpts and definitions, it may be accurate to conclude that a dynamic configuration is most commonly performed in response to an operating condition. But a reconfiguration is also performed in response to an operating condition, and therefore the "operating condition" aspect does not seem to capture the difference between a reconfiguration and a dynamic configuration. Instead, the distinction is reflected in the extrinsic sources offered by both parties: a dynamic configuration is one that is "immediate and concurrent;" that is, during system operation.

This common ground in the parties' extrinsic definitions is consistent with the usage in the specification. The term "dynamically" is only used in the specification of the '268 patent in two locations, at column 3, line 34 and line 54. The surrounding text describes situations in which new applications or devices are incorporated into the system while the system is operating. Ford asserts in its briefing that a configuration (dynamic or otherwise) is only possible while the system is operating, and therefore this requirement is meaningless. But Ford also asserted at oral argument that there can be a difference between a configuration that occurs when

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a system boots or starts up as contrasted with one that occurs during the operation. Ford made this point to support the proposition that a dynamic reconfiguration is triggered by some change in condition that occurs during operation, but the same argument confirms that there can be a distinction between configuration at startup and configuration during operation. The most consistent interpretation in view of the specification, claims, and definitions offered by the parties, is one in which the configuration occurs while the system is operating.

Conclusion

The term "dynamically configure" an application means to "set up the application to run while the system is operating."

10. Take over control and operation of the new device

The next disputed claim limitation relates to a requirement to "take over control and operation" of a new device. In four of the asserted patents, the claims generally define a processing system in which a new device is detected and incorporated into the system in a manner in which a software application running in the system causes the system to take over control and operation of the new device. The disputed claims having this limitation include '739 patent claims 1 and 18; '136 patent claims 1 and 18; '028 patent claim 1, and '117 patent claim 1.

Claim 1 of the '739 patent is illustrative, and provides:

> 1. A system having multiple on-board processors configured to operate within a vehicle, comprising:
> one or more of the multiple on-board processors coupled together through multiple links into a multiprocessor network, wherein the multiprocessor network is configured to:
> operate a transceiver configured to detect and establish communication between at least one processor in the multiprocessor network and at least one new device brought into or next to the vehicle;
> selectively connect the new device to the multiprocessor network;

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use a data manager to identify a particular type of data used in the new device and processed with a first software application controlled and operated by the new device;

identify a second software application from among multiple different software applications located in a memory in the multiprocessor network, wherein the second software application is currently not loaded in or operated by any of the on-board processors, and the second software application is also configured to process the same particular type of data processed by the first software application controlled and operated by the new device;

using the data manager to select a particular one of the on-board processors for operating the second software application selected from the memory;

automatically move the second software application from the memory in the multiprocessor network to the particular one of the on-board processors selected by the data manager;

configure the particular one of the on-board processors to run the second software application moved from the memory, wherein running the second software application causes the particular one of the on-board processors to **take over control and operation of the new device**; and

initiate transfer of the data from the new device to the particular one of the on-board processors and initiate processing of the particular type of data received from the new device with the second software application running on the particular one of the on-board processors.

The primary dispute between the parties is whether the limitation "take over control and operation of the new device" requires control and operation of the device, or, alternatively, control and operation of a particular functionality of the new device. Accordingly, Ford proposes that this term means "assume the software functionality of the new device," while Medius proposes "control and operate the functionality of the new device that is associated with the application."

Medius first argues that the context of the claims relates to the functionality of a particular software application on the new device. Thus, claim 1 from the '739 patent (above) identifies a particular type of data and a first software application controlled and operated by the new device, then configures the multiprocessor network to run a second software application that can process the same type of data as the data processed by the first application on the new

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device. Thus, Medius concludes that the context makes it clear that the on-board processor is controlling and operating the functionality related to the first software application, not the new device generally.

Claim 1 from the '739 patent further requires the system to initiate transfer of data from the new device to the on-board processor and to initiate processing of the data with the second software application. Medius contends that taking over control and operation of the new device (as opposed to just the particular functionality) effectively turns the new device into a brick and thereby makes it impossible to transfer the data as required. Ford counters that the claims only require data to be transferred from the new device to the system, and that this data transfer is performed by the system, not the new device. Consequently, even if the new device is essentially turned into a passive memory (such as with a flash drive) data can still be transferred under the control of the system. Similarly, the take over and control of the entire device does not necessarily turn the device into a brick, but rather turns it into a device having functionality controlled by an on-board processor. It is also consistent to conclude that the claims intended to define a situation in which the new device and the multiprocessor system did not interfere with one another, thereby intentionally preventing the new device from operating outside of the control of the system into which it is integrated.

There is very little in the specification that aids in construction of this limitation. Medius points to an excerpt describing a navigation application running on a laptop computer. Once it is detected, the car operator can control the navigation application through the user interface in dashboard of the car, and need not look at the computer. '260 patent, at 3:7-13. This excerpt falls short of confirming that only the particular functionality of the new device is taken over and controlled because it does not indicate whether any functionality remains under the control of the

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device. In addition, it does not use the claim language "take over control and operation of the new device," so it is unclear whether this example is intended to align with the claim limitation at all.

Ford's proposed interpretation is based primarily on the prosecution history for the '739 patent. On September 15, 2009, the applicants responded to an office action dated March 16, 2009. The remarks accompanying the response addressed a rejection of the claims based on a patent to Amro, number 6,292,747. In the remarks, the applicants stated that "if control and operation of the navigation software application in vehicle 102b of Amro is taken over by the navigation software application in vehicle 102a, there would be no software application running in vehicle 102b to determine the location information of vehicle 102b for sending to vehicle 102a." Court Doc. 92-1, at 132. The applicants further argued that it would not make sense in Amro to transfer to control of communication devices in a first vehicle to a second vehicle because that would prevent the vehicle operators in the two vehicles from controlling their own travel information. *Id*. At the time, the applicable claim (application claim 2) did not require take over control and operation of the *new device*; instead, it required "take over control and operation of the software application by the on-board processor and take over processing of the particular type of data with the software application on the new device." Court Doc. 92-1, at p. 121.

The applicants made a similar argument in distinguishing a published patent application by Ohmura, number 2001/0048749 A1. In seeking to distinguish Ohmura, the applicants argued that the "portable device 200a always maintains control and operation of any locally running software running, regardless of where the audio data from the portable device 200a is transferred." Court Doc. 93-1, at 4. The applicants further argued that Ohmura teaches away from taking over control and processing of a software application on the portable device because

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an application on the portable device could not be taken over by the on-board apparatus and still play out audio data from the portable audio apparatus. *Id*.

Thus, at the time of this response the applicants urged that the cited prior art did not teach the claimed requirement to "take over control and operation of the *software application*" by the on-board processor. A key part of the distinction was that if the application is taken over and controlled it could not still function on the new device.

The claim was later amended in a set of claim amendments proposed in advance of an interview with the examiner and subsequently adopted in a notice of allowance. See Court Doc. 92-1, at 13-48. In the amendment of application claim 2 (which became '739 patent claim 1), the requirement to take over control and operation of the software application was amended to now require "take over control and operation of the new device." Because the allowance followed the examiner interview, there are no further remarks addressing this particular amendment. Nonetheless, the amendment to insert "the new device" instead of "the software application" must have meaning.

Medius proposes that the term should be construed to restrict the control and operation to the functionality of the new device that is associated with the application. This construction would retract the amendment made in the course of the discussions leading to the notice of allowance, effectively replacing "the new device" with its former language "the software application." It would be improper to interpret the claims in a manner that would recapture subject matter expressly disavowed or given up by amendment. *Southwall Techs., Inc. v. Cardinal IG Co.*, 54 F.3d 1570, 1576 (Fed. Cir. 1995).

Medius further argues that there is no clear disavowal and that Ford has taken the prosecution history out of context by selectively quoting it. Medius points out that the argument

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distinguishing Amro and Ohmura only referred to take over and control of certain functionality on the new device, not all software functionality. While this is an accurate reading of the remarks made during prosecution, it fails to account for the fact that the claims at the time were limited to taking over control and operation of the software application, and later amended to take over control and operation of the new device. Ford also contends that the early remarks are important because they demonstrate what it means to take over control and operation, which precludes separate control and operation on the new device.

Ultimately, the construction proposed by Medius seeks to recapture subject matter expressly given up by amendment. Its proposal would effectively interpret "the new device" to mean "the software application," and such an interpretation would reverse the course of an amendment made during prosecution. Ford's proposed interpretation is more consistent with the plain language of the claims and the other intrinsic evidence, but amounts to an exercise in redundancy by substituting synonyms for claim language without adding clarity. Ford replaces "take over" with "assume," and this substitution seems to add more confusion than it removes. This particular limitation requiring "take over control and operation of the new device" is written in ordinary words that mean just what they say. One of the on-board processors must take over control and operation of the new device, such that the new device cannot be controlled and operated directly, outside the multiple processor system.

Conclusion

The term "take over control and operation of the new device" uses commonly understood terms in their ordinary sense, such that no construction is required.

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11. Processes the data received from the additional audio source

Disputed claims 1, 11, and 21 of the '268 patent generally relate to a vehicle audio system (in the case of claims 1 and 21) or a vehicle data processing system (in the case of claim 11). In each case, the claims require the system to be able to detect more than one audio source or data source in order to transfer the audio or other data for processing by an on-board processor. The essence of the dispute between the parties is whether the claims require the processing of the multiple audio or data sources simultaneously or only sequentially. As was the case with the limitations discussed above, in each case the disputed claim limitations are worded slightly differently from one another but the parties have elected to treat them identically.

Claim 1 is exemplary of the claims at issue, and reads:

> 1. A vehicle audio system, comprising:
> a wireless transceiver configured to wirelessly detect an audio source brought into or next to a vehicle; and
> logic circuitry responsive to detection of the audio source configured to:
> identify a security attribute associated with the audio source;
> use the identified security attribute to identify the audio source as an authorized audio source or an unauthorized audio source;
> responsive to identifying the audio source as an authorized audio source, connect the audio source to an on-board processor and identify a type of data processed with a first software application operated by the audio source; and
> responsive to identifying the type of data, dynamically configure a second software application from within the vehicle to:
> process the same type of data processed by the first software application operated by the audio source,
> initiate transfer of the data from the audio source to the on-board processor, and
> process the data received from the audio source,
> wherein the wireless transceiver is further configured to wirelessly detect an additional audio source brought into or next to the vehicle; and
> the logic circuitry is further configured to:
> identify a security attribute associated with the additional audio source;
> use the identified security attribute to identify the additional audio source as an authorized audio source or an unauthorized audio source;
> responsive to identifying the additional audio source as an authorized audio source, connect the additional audio source to the on-board processor and identify a type of data processed with a third software application operated by

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the additional audio source, wherein the third software application is different from the first and second software applications; and

responsive to identifying the type of data, configure a fourth software application in the on-board processor, wherein the fourth software application is different from the first and second software applications, to:

process the same type of data processed by the third software application operated by the additional audio source,

initiate transfer of the data from the additional audio source to the on-board processor, and

process the data received from the additional audio source.

Claim 21 is structured similarly in that it requires the system to detect and establish communications with an audio source, using an application in the vehicle audio system to process data from the audio source, and further to detect and establish communications with an "additional audio source," reconfiguring the vehicle audio system to run a second application that processes the additional data types received from the additional audio source.

Claim 11 uses the term "data source" rather than audio source, and requires the system to detect, identify, and process multiple data sources, referred to in the claim as the second data source and the third data source.

Medius proposes that the disputed claim limitations do not need to be construed. Ford proposes that they should be construed as "process[es] the data [types] from the new audio/data source concurrently as the data [types] from the first audio/data source." In essence, Ford's position is that the multiple audio or data sources must be processed by the system concurrently, not sequentially.

Medius urges that the claims use ordinary words that are easily understood and therefore need not be construed. Ford's proposed construction, however, is not an exercise in redundancy but rather an effort to resolve a genuine dispute regarding the meaning of the claims. Indeed, contrary to Medius' position the structure of the claims more fairly suggests a concurrent

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processing than a sequential one. As set forth above, claim 1 is a lengthy claim that repeats separate steps of identifying, connecting, configuring, and processing for each of a first and an "additional" audio source. A person of ordinary skill in the art would expect that the term "additional" conveys a concurrency requirement, and further that repeating each of the limitations for the additional audio source and using a second software application to process the audio data confirms the concurrency requirement.

The patent specifications do not resolve the dispute. In general, they describe the ability to communicate with a variety of external devices but without clarifying when such communication is concurrently or sequentially with more than one device. The '033 patent contains a description to the effect that multiple applications may be running at the same time, though it is unclear whether this relates to the data sources or audio sources of the present claims. See '033 patent, at 4:3-14. The '260 patent describes an example in which three different devices are detected in or around a car (including a cellular telephone, a radio, and a DVD player). The related discussion and accompanying Figure 12 indicates that all of these multiple audio sources are communicating at the same time. '260 patent, at 7:41-8:37. A further excerpt from the '136 patent refers to a processor that controls the audio sources in the vehicle. '136 patent, at 2:44-55. Medius contends that the above passages do not require concurrent processing from multiple different sources; at most Medius contends that they suggest that concurrent processing is possible.

Ford's proposed claim construction relies primarily on the prosecution history. In particular, Ford relies on statements made during prosecution of the '739 patent, which is the immediate parent of the '268 patent. An August 14, 2008 response to office action addressed application claim 37 related to a method that configures a system with multiple processors. The

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claim was structured differently from the claims of the '268 patent presently in dispute, but did require multiple processors to communicate with one another and to integrate a new processor. Court Doc. 93-1, at 113-14. In the course of responding to the rejection, the applicants contrasted the invention of pending claim 37 with the Bluetooth Specification version 1.1. According to the applicants, the prior art Bluetooth Specification described a network restricted to a single communication link between a host device and one remote device. By contrast, claim 37 allegedly recited a method "that is not limited to communicating with one device, but instead is able to communicate with multiple devices." *Id.*, at p. 121.

Medius responds that the patentee was distinguishing different prior art at the time it offered the Bluetooth comment, and that the Bluetooth remark was only offered as background. If the statement amounts to prosecution disclaimer, it applies to all statements characterizing an invention even if not made in response to a rejection over the prior art. *Uship Intellectual Props., LLC v. United States*, 714 F.3d. 1311, 1315 (2013). Likewise, the fact that the applicant may have given up more than was necessary does not render the disclaimer ambiguous. *Id.* At the same time, prosecution disclaimer generally does not apply when the claim term in the descendant patent uses different language. *Ventana Med. Sys. V. Biogenex Labs., Inc.*, 473 F.3d 1173, 1182 (Fed. Cir. 2006). While the Bluetooth distinction characterizes the invention and would amount to a disclaimer for the identical claims, the remark was directed to claims that were different from the pending claims and therefore the applicability of the disclaimer is not sufficiently clear.

A later remark to the same effect, however, is quite clear. During the prosecution of the '268 patent, the applicants responded to a rejection with a similar argument. At the time of a response submitted on April 22, 2011, application claim 1 required detection, connection,

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configuration, and processing for a single audio source brought into or next to a vehicle. Dependent claim 3 required the system to detect, connect, configure, and process data from an additional audio source. In arguing in favor of the patentability of claim 3, the applicants stated, "Claim 3 recites connecting both the audio source and an additional audio source to the on-board processor." Court Doc. 106-1, at 85 (emphasis added). The applicants further distinguished prior art patents to Witkowski (number 7,257,426) and Stuempfle (number 6,505,100) by arguing that they "only describe a single connection between the vehicle and the data source." Court Doc. 106-1, at 85.

Medius contends that Ford's analysis is in error and that the thrust of the remark during prosecution was related to connections of sources to different speakers, not the concurrent processing of multiple sources. In making this argument, Medius has blurred together remarks made by the applicants related to application claims 3 and 4. For the sake of clarity, the entire remark at issue from the April 22, 2011 response reads:

> Claim 3 recites connecting both the audio source and an additional audio source to the on-board processor. Claim 4 recites selectively connecting the audio source to a first speaker located in a first section of the vehicle and connecting the additional audio source to a second speaker located in a second section of the vehicle.
>
> Both Witkowski and Stuempfle only describe a single connection between the vehicle and the data source. For example, Witkowski only describes a single electronic device 12 communicating with the vehicle 14 (FIG. 1). Similarly, Stuempfle only describes a single connection via Internet 4 established with vehicle 1. It follows, that Witkowski and Stuempfle also do not suggest connecting an audio source to a speaker in a first region of the vehicle and an additional audio source to a second speaker in a second region of the vehicle as recited in claim 4.
>
> Accordingly, claims 3 and 4 are also separately patentable under 35 U.S.C. §103(a) over Witkowski and Stuempfle.

Medius correctly argues that the applicants advanced an argument distinguishing Witkowski and Stuempfle based on the ability to connect sources to different speakers in a

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vehicle, but plainly that remark was directed to application claim 4, not application claim 3. Just as plainly, the applicants characterized claim 3 as requiring a connection of both the audio source and the additional audio source, and distinguished claim 3 on the basis that the prior art described only a single connection.

The structure of the claims in the '268 patent indicates that two different audio or data sources must be connected, and the data must be processed, at the same time. This plain and ordinary understanding is confirmed by the prosecution history, in which the applicants described application claim 3 (corresponding to '268 patent claim 1) as requiring a connection between both the audio source and the additional audio source. The applicants cemented this understanding by distinguishing the clam from prior art on the basis that the art only describes a single device connecting with the vehicle.

Conclusion

As used in the '268 patent, the limitation "process the data received from the additional audio source," found in claim 1, must occur concurrently with the limitation "process the data received from the audio source."

The limitation "process the data received from the third data source," found in claim 11, must occur concurrently with the limitation "process the data received from the second data source."

The limitation "processes the identified data types received from the additional audio source," found in claim 21, must occur concurrently with the limitation "processes the identified data types received from the audio source."

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12. Link

Finally, the parties dispute the meaning of the term "link" as found in '260 patent claim 9, '739 patent claim 1, '028 patent claim 2, and 118 patent claim 6. In general, the term "link" is used in claims in which multiple processors are linked together. Medius proposes that a link is "a physical and/or logical connection for communicating or signaling, which can be wired or wireless." Ford proposes "a data communications channel connecting two points or entities."

The particular claim language at issue includes:

'033 claim 13: "multiple links connecting the multiple individual processors together";

'260 claim 9: "different communication links coupling the multiple processors together";

'739 claim 1: "one or more of the multiple on-board processors coupled together through multiple links into a multiprocessor network";

'028 claim 2: "the multiprocessor system is further configured to monitor for…a failure in a communications link with the newly added device";

'118 claim 6: "the new processor is connected to the distributed processing system over wireless Bluetooth, 802.11, satellite link, or cellular connection."

Medius first contends that the specifications make it clear that links can be wired or wireless, citing specification excerpts in support. See '033 patent at 6:1-3, 11-26-28; 260 patent at 2:53-60. Ford does not dispute the wired or wireless possibilities.

Medius further contends that the specifications support the construction that a link can be physical or logical, and that the term should be construed to say so. None of the asserted patents contain the term "logical" or a reference to a "logical link," and at least for that reason it is not clear what Medius means by "logical." In its briefing, Medius did not offer extrinsic evidence to the effect that a link is commonly understood to encompass both physical and logical links, and

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for that matter nothing submitted by Medius even establishes that there is such a thing as a logical link.

In its opening brief, Medius did not point to anything in the specifications or file histories supporting the logical link interpretation. In reply Medius argues that a person of ordinary skill would understand the word logical (though again without defining it) because the patents describe links that include logical connections as well as physical ones. Specifically, Medius contends that a connection under the IEEE 802.11 or Bluetooth protocols are logical, while wired or wireless connections are physical ones. Medius further refers to the '033 patent at 5:53-6:3 as describing Bluetooth, TCP/IP, and 802.11 links, apparently contending that these are all examples of logical links.

At oral argument, Medius argued that a logical connection is one that takes place at the software level and therefore is not a physical connection. Medius agreed that each of the protocols it mentioned—Bluetooth, TCP/IP, and 802.11—requires a physical connection in that data is transferred either by wires or wirelessly. At the same time, Medius argues that they provide for a logical component, which is somehow incorporated into the protocol for the exchange of information. If these protocols do include some form of "logical link" that is somehow different than a data communications channel connecting two points or entities, Medius has failed to explain how that is the case and has not provided supporting evidence. With nothing more than attorney argument, and without a clearer articulation of the meaning of a logical link, this portion of its proposed construction cannot be adopted.

Ford contends that a link is a data communications channel connecting two points or entities. This position is partially based on an extrinsic source defining a link as "a communications line or channel connecting two points or entities, and via which information

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may be transmitted." *Wiley Electrical & Electronics Engineering Dictionary* (2004) at 425. Ford further contends that the asserted patents consistently use the word "link" to refer to a channel that transfers data between two entities, citing the '033 patent at 6:1-3 ("For example, the two processors 50 and 52 may communicate over a [sic: an] Ethernet link, 802.11 wireless link, or hardwired Universal Serial Bus link, etc."). See also '136 patent at 4:15-17.

Medius agrees that a link is encompassed by the cited portion of the Wiley definition, but complains that the rest of the Wiley definition makes it clear that a link is broader. Specifically, the definition provides that a link is "A communications line or channel connecting two points or entities, and via which information may be transmitted. Also, the creation of such a link. Also, the resources which facilitate such a link. For instance, a network connecting two nodes." This dispute is much ado about nothing. The portion of the Wiley definition that was not adopted by Ford relates to potential definitions for "link" that are not a good fit in the context of the claims. More importantly, Medius does not contend that these omitted portions should be included, nor do any of these omitted portions support the proposition that a link can somehow be logical. Though Medius characterizes Ford's quotation as an unjustified narrowing, Medius' proposed definition does not seek to incorporate anything omitted by Ford.

Medius further offers that the link should be for communicating or signaling, while Ford's proposed interpretation is that the link is for data communications. Medius' proposed interpretation is based on a passage from the '260 patent that refers to "signals" that may be sent from a DVD player and read by a processor. '260 patent, at 3:57-67. Ford responds that a signal is encompassed within data communications, and therefore essentially responds that it would be redundant to include both. Medius does not articulate any perceived difference between the two, and by all appearances both sides agree that data communications include signaling.

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Finally, Medius contends that the term should be construed to specify that it can be wired or wireless. Ford agrees that the links in the patents are described as including wired or wireless types of links, and therefore there is no genuine dispute on this point.

Conclusion

The limitation "link" means "a data communications channel, which can be wired or wireless, connecting two points or entities."

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